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„Can't get it out of my head –
The pop song in the EFL classroom and
its effect on text recall"

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List of abbreviations

CEFR	common European frame of reference
CLT	communicative language teaching
CMA	contemporary music approach
EEG	electroencephalogram recordings
EFL	English as a foreign language
ERP	event-related potentials
FLA/FLL	foreign language acquisition/learning
fMRI	functional magnetic resonance imaging
INMI	involuntary musical imagery
IQ	intelligence quotient
LAD	language acquisition device
LLH	language learning histories
MIT	multiple intelligence theory
MT	monitor theory
PDP	parallel distributed processing
PET	positron emission tomography
SCT	sociocultural theory
SD	situational discourse
SDL	sustained deep learning
SLA/SLL	second language acquisition/learning
SSIMHP	song-stuck-in-my-head phenomenon

In statistical testing:

ANOVA	analysis of variances
d	Cohen's d (effect size)
F	F-value (in an ANOVA)
M	mean
N	sample size; total indications
p	p value, level of statistical significance
r	effect size
SD	standard deviation
t	t-value (in a t-test)

1. INTRODUCTION

> [O]f the many factors that influence learning, few are as far-reaching - or little understood - as sound and music. (Halpern 1999: 1)

Steven Halpern addresses two crucial aspects in relation to music and sound which are fundamental to this thesis and will accompany this entire work. Primarily, he alludes to the powers of music in learning processes and to the commonly held belief in the beneficial effects of music and songs. Regarding specifically foreign language learning, this belief is often based on personal learning experiences and the fascinating fact that most people remember some songs along with the lyrics from their own schooldays seemingly effortlessly. On the other hand, Halpern also points to the fact that this quality of music represents a research area currently still in need of studies as the generalizability of much published research is problematic especially in relation to foreign language learning.

In general, the present thesis follows two primary aims. Firstly, it sets out to provide a profound review of the literature on the role and incorporation of music and songs in foreign language learning and teaching, as well as to give insights into related areas such as cognitive science, pedagogy, and developmental aspects in adolescence. Thereby the necessary theoretical grounding for this research project will be established. Secondly, the actual study seeks to examine the effect of pop songs on text recall performances among Austrian intermediate students of English. In addition, the study intends to shed new light on the occurrence of involuntary musical imagery, a phenomenon more commonly known as earworm or catchy tune, in language learning contexts and on the effect it has on memorization processes.

The overall structure of the study takes the form of seven chapters, including this introductory chapter. Chapter two begins with laying out the theoretical dimensions of how language and music are related structurally and cognitively, how songs are processed, as well as how and why music can function as a memory aid. The third chapter presents foreign language acquisition theories with a focus on the integration of music and songs in the acquisition process. It thus identifies links to these theories and tries to provide further evidence from language learning histories for such a successful integration. Since most foreign language learning spans the period of adolescence, a brief excursus on media use in adolescence and on the adolescents' fascination for music and pop songs in particular is

provided. The fourth chapter discusses various pedagogical considerations and reasons for the use of music and songs in the foreign language classroom, presents some teaching approaches with a musical focus, and outlines beneficial effects on the foreign language classroom as well as on specific language aspects. Chapter six is the first chapter dedicated to the research project conducted for this thesis and begins with establishing the rationale of the study and presenting the research questions and hypotheses. Subsequently, the research design and methodology used for this study are delineated. In chapter seven, the statistical procedures performed on the data along with the results of the research project are presented. This is followed by a discussion of the results drawing upon the research hypotheses as well as concepts, aspects, and previous studies presented in the literature review. Furthermore, this chapter includes a discussion of the limitations of this study, suggestions for future research, and implications for foreign language learning and teaching. Finally, the conclusion gives a brief summary of the study and ties up previously introduced theoretical and empirical strands.

As indicated by Halpern (cf. 1999: 1) and as will be seen in the literature review, far too little attention has been paid to the research topic of the integration of music and songs in foreign language acquisition so far. This rather interdisciplinary study thus adds to the body of research on music and songs in foreign language learning as well as to the body of research on involuntary musical imagery.

2. MUSIC, LANGUAGE, AND THE MIND

The study of the relationship between music and language is embedded in a vivid research field characterized by the number of disciplines involved and its seemingly inherent controversy. On that account, it might be apparent that this chapter cannot possibly attempt to provide a complete synopsis of this research area; rather, it seeks to identify the issues relevant to the present study. The main issues addressed in this chapter are parallels and differences between language and music on which a brief introduction is provided. The core issue of the subsequent chapter is the cognitive aspect of language and music. These aspects are discussed by giving an insight into cognitive processing of language and music in general

and in the context of song perception. In addition, the questions of if and how music might function as a memory aid are elaborated upon in the third section of this chapter.

2.1 Similarities and differences between language and music

One characteristic societies and cultures all over the world have in common is the development and existence of music and language (cf. Jackendoff 2009: 197; Patel 2008: 3; Rebuschat et al. 2012: xiii). The coexistence of these two fundamental traits has been a source of interest for researchers of various fields spanning many centuries. Major thinkers such as Plato, Darwin, Rousseau, and Wittgenstein have already speculated about the relation of music to language (cf. Besson and Schön 2001: 234; Patel 2008: 4; Rebuschat et al. 2012: xiii). It is thus unsurprising that investigating and defining their similarities and differences remains important today.

The research field interested in the study of features of music and language as it presents itself today is characterized by a sharp division in perspective. One perspective, most compellingly represented by Jackendoff (2009), is engaged in accentuating the dissimilarities, whereas the other perspective is laying emphasis on the commonalities between language and music with Patel (2008) being the most prominent representative. This ideological split contributes to a more complicated discussion of similarities and differences, but there are also many approaches taken by researchers of numerous disciplines, which further advances the complexity. Nevertheless, it seems to be commonly agreed upon that music and language do share features (cf. e.g., Besson and Schön 2001; Fonseca Mora 2000; Jackendoff 2009; Patel 2008; Wallin, Merker and Brown 2000) even if the extent of this relationship is not entirely agreed upon.

An easily accessible, but also rather superficial way of approaching the field is presented by Brown (2001: 372), who suggests a division of characteristics into three basic categories. The first one subsumes shared features of language and music. Brown lists the production and expression of sounds as well as the ability to convey affective information through rhythm. The second category considers similar features such as “discreteness, combinatoriality” and the process of creating and producing phrases. The last category is a collection of the divergent features which, according to Brown (2001: 372), are the deployment of “isometric rhythms and pitch blends” in music and the application of words

and sentence structure. It can already be seen from this first account that a classification of similarities and dissimilarities is not necessarily an easy undertaking.

Continuing with the similarities, it has been postulated that music and language are both means of communication (cf. Fonseca Mora 2000: 147), entail memory (cf. Besson and Schön 2001: 235; Jackendoff 2009: 196), share the features of sound production, and features like pitch, stress, rhythm, pauses, volume, tone, and melody (cf. Fonseca Mora 2000: 147; Jackendoff 2009: 198; Patel 2008: 177ff.). Harmony in music and syntax in language represent systems for forming structures by the application of different elements according to rules defined by these systems (cf. Besson and Schön 2001: 236; Jackendoff 2009: 196). Besson and Schön (2001: 237) consider the closest commonality to be the generation of expectations that both language and music are capable of. Regarding the acquisition processes of language and music, further similarities can be found. Firstly, both systems are learned in similar ways; secondly, this happens without greater difficulties. Thirdly, both can only be acquired by the learner's exposure to it (cf. Besson and Schön 2001: 235; Fonseca Mora 2000: 147; Saffran 2003: 39).

From a developmental point of view, it should be noted that music and language are both acquired through auditory input; what is even more fascinating is that the first thing a fetus recognizes and learns about its future mother's tongue is its melody (cf. Fonseca Mora 2000: 149; Thompson and Andrews 2000: 181f.). Having reviewed various studies on the development of language and music in young children, Fonseca Mora (2000: 149) remarks that the features of language that are first learned are "discourse intonation" and "the ordering of pitched sounds". Further support is provided by Brandt et al. (2012: 1). It can be concluded from Fonseca Mora's remarks that both of these features are of a musical nature and thus further indicate a rather intertwined relation of music and language especially as regards the acquisition process of language at a remarkably early stage.

Nonetheless, it appears as if the most crucial trait language and music share is their representations on diverse levels with distinct mechanisms operating on them (cf. Besson and Friederici 1998: 2). This leads directly to one of the major obstacles present within this research domain, namely that the level of detail chosen for analyses and comparisons has an enormous influence on the comparability and most importantly, on the findings. In other words, whereas at one level the findings are likely to point to similarities, at another level they might again point to differences (cf. Besson and Schön 2001: 235). The implications

thereof can be easily traced when taking into account findings from different degrees of detail. For instance, although language and music share certain features such as pitch, the actual organization of musical pitch and intonation in language shows indeed large differences (cf. Patel 2008: 86; Jackendoff 2009: 200). Jackendoff (2009: 200) even concludes his analysis by reducing the similarity to motor production.

Similarly, it is argued that rhythm is a shared feature of some considerable importance to both systems (cf. Patel 2003: 141). At a more detailed level, it is the metrical structure which can be identified as another parallel (cf. Jackendoff 2009: 203). Patel's (2008: 141) analysis also highlights existing similarities in terms of grouping structures of words and tones. Despite these similarities, music and language largely differ with respect to periodicity. Musical rhythm is isochronous as it usually follows a steady beat, but language clearly misses such a clear representation of periodicity (cf. Patel 2003: 141). Despite this divergence, Patel (2008: 159) believes he has identified the key link of musical and linguistic rhythm in the reverse. He sees the link in the presence of non-periodic characteristics in both systems. Interestingly, even though Jackendoff and Patel seem to draw their conclusions from the same evidence, their interpretations differ considerably. Jackendoff (2009: 199), in sharp contrast to Patel, argues that the grouping structure observed in music more closely resembles a structure in vision than in language; he therefore interprets the linguistic counterpart as purely domain-specific.

Turning to a functional aspect, language clearly allows for extra-linguistic references, whereas music does not and is commonly perceived as entirely "self-referential" (Besson and Schön 2001: 236). Moreover, it can be seen that although music and language are used to communicate, the functions of both systems are not identical. Clearly, language has various functions; nonetheless, it can be said that the function of language is more of a propositional and conceptual nature whereas music is strongly associated with conveying affect and emotion (cf. Fonseca Mora 2000: 147; Jackendoff 2009: 197ff.). Although Jackendoff (2009: 198) addresses and acknowledges the fact that language can express emotion and affect like music does, he does not consider it a parallel. Patel (2008: 344) again contrarily interprets this shared function as the main evidence and the key link between language and music in terms of meaning.

Beside the discussion of structural and functional similarities and dissimilarities[1], a third aspect should be considered here, namely the evolutionary standpoint. It appears that the evolutionary question evokes partly less controversy than other aspects related to the comparison of music and language as many scholars seemingly hold a more or less strong belief in a common origin (cf. e.g., Brown 2001: 372; Jackendoff 2009: 197; Molino 2000: 173; Patel 2008: 3). Wallin, Merker and Brown (2000: 3) state their belief very clearly by saying that "the evolution of language is highly intertwined with the evolution of music", supported by most of the contributors to their elicited volume. Brown (2001: 372) is convinced of the existence of a common ancestor, which he refers to as "musilanguage". According to him, it is characterized by all identical features of language and music out of which distinctive features and thus the systems language and music developed later on. Despite the widely held belief in a common ancestor also other minor positions exist. For instance, it has been claimed that language and music developed independently while it has also been argued that one of the two systems developed first out of which the other developed only later (cf. Levman 1992: 147).

This concise introduction to some of the parallels and non-parallels between language and music has shown that, despite the fact that researchers have not yet reached a consensus, both systems possess similarities and differences, although on diverse levels of analysis.

2.2 Cognitive aspects of language and music

Apart from this strong interest in structural, functional, and evolutionary aspects with regard to the relation between language and music just presented, the question of how these two systems are cognitively processed is even more crucial to the entire research field. The following two subchapters will provide an insight into the current state of research in the field of cognitive processing of language and music. Firstly, a basic understanding shall be established in order to discuss some current studies on song perception in the second part.

[1] Due to the scope of this thesis and the abundance of literature, it is unfortunately impossible to present a more detailed account of the discussion of similarities and differences here. Apart from this vastly oversimplified and very selective discussion, interested readers are referred to Patel (2008), who has written undoubtedly the most complete synthesis in the field to date. His other recent publications (2003; 2005; 2010; 2012) are also worth reading. Readers looking for a more critical account of the issue shall be referred to Jackendoff (2009).

2.2.1 The controversy over cognitive processing

The past twenty years have seen increasingly rapid advances in the field of neuropsychology – particularly neuroimaging – which have led to a growing interest in the exploration and understanding of the cognitive systems of language and music (cf. Besson and Friederici 2005: 57; Rebuschat et al. 2012: xiii). Similar to the debate over structural and functional similarities and differences, there has been little agreement on the cognitive representations of music and language to date. In general, two major research strands in cognitive science hold opposing views on the issue. One of these strands is neuropsychology. Its most prominent representative Isabelle Peretz (2012; Peretz and Coltheart 2003; Peretz et al. 2004; Peretz et al. 2009) continuously provides evidence for independence and modularity in the processing of language and music and thus believes these processes to be domain-specific. The other strand is neuroimaging, in which Aniruddh Patel (2003; 2008; 2012) is the main proponent of an integrated and interactive cognitive processing of the two domains and thus also of an overlap in their representations.

In Peretz and Coltheart's (2003: 688) view, language and music are processed in two separate modules in the brain. Their claim is mainly based on studies with people suffering from brain damage (cf. e.g., Hébert and Peretz 2001; Peretz 2006). These provide evidence for the fact that brain damage can affect musical abilities while linguistic abilities remain intact, a state also referred to as amusia. Similarly, people suffering from verbal agnosia experience the exact reverse, namely an impaired linguistic ability and at the same time an intact musical ability. Additionally, agnosic and amusic persons are tested on their ability to concentrate on either musical or linguistic information in songs. (cf. Peretz 2006: 12) Based on such research findings, a "modular model" of how music is processed in the brain was developed (Peretz and Coltheart 2003: 690). Basically, it identifies the components associated with the domain of music, such as tonal, interval, and contour analysis as well as "musical lexicon" and "vocal plan formation". According to this model, rhythm and meter analysis as well as phonological aspects are not connected to the musical domain. Interestingly, the domain-specificity of emotion, rhythm, and meter is considered still unclear, but Peretz and Coltheart speculate on their potential specificity to the musical domain. However, more recent studies challenge the notion of the past few decades. For instance, Jentschke et al.'s (2008: 11) study results indicate that children with language

deficiencies, in particular "linguistic-syntactic processing" deficiencies, due to impairment in the respective regions, also show difficulties in "musical-syntactic processing". The remarkable findings of this study stand in sharp contrast to the so-far held belief that the musical and the linguistic abilities have autonomous cognitive origins.

The advances in neuroimaging have not only sparked renewed interest within the research field, but have also led to new evidence that challenges commonly acknowledged and established beliefs in regards to the cognitive relationship of language and music. Through studies applying a variety of brain-imaging methods, it could be demonstrated that areas once most importantly and strongly associated with language are active in music processing as well[2]. Furthermore, considerable overlap in some brain areas could also be found for the processing of both language and music (cf. e.g., Besson and Schön 2001: 241; Koelsch et al. 2002: 956; Patel 2008: 73; 2012: 205; Schön et al. 2010: 459). Thus, neuroimaging methods have directly challenged the notion of domain-specificity and modularity.

In an attempt to provide an answer to these strong claims raised against the field of neuropsychology, Peretz (2012: 259) argues that due to the fact that music processing activates a number of areas located in both hemispheres, it is not revolutionary to find an overlap. She rather believes that the revelation of the activation of distinct areas is what could shed light on the workings of the brain (cf. Peretz 2012: 260f.). Besson and Schön (2012: 288) criticize that claiming a brain region specific or not cannot merely be judged "on the basis of contrast statistics" as is common practice in neuropsychological studies. They suggest to base this judgment on the proportion of how often a certain area has been associated with a function and how often it has been related to different functions so far (cf. Besson and Schön 2012: 288).

Another research strand potentially relevant to the present study is developmental cognitive psychology. Research comparing adults and children in their cognitive development has shown that musical and linguistic processing cannot be considered domain-specific during childhood and it is suggested that these processes only become specific and modular with age (cf. e.g., McMullen and Saffran 2004: 289; Saffran 2004: 289; Skoe and Kraus 2012: 277). Saffran (2004: 289), holding an interesting in-between position in the research field, condenses the findings of her study:

[2] For more information on the brain areas involved cf. the studies by Falk (2000), Koelsch et al. (2002), Schön et al. (2012), and Zatorre et al.(1992).

> [W]hile adult musical and linguistic processes are modularized to some extent as separate entities, there may be similar developmental underpinnings in both domains, suggesting that modularity is emergent rather than present at the beginning of life.

It is, however, worth noting that amidst this controversially debated subject, Patel (2012: 204) attempts to bridge the gap by proposing the so-called "resource-sharing framework". On the one hand, he still ascertains his belief in an integrated relation and claims that even though structural similarity is not given for certain aspects of language and music, this does not mean that a strong link in cognitive processing would not exist. On the other hand, he proposes that "there are aspects of music and language (e.g., syntax) that exhibit domain-specificity *and* neural overlap" [author's emphasis] (Patel 2012: 206). He even goes as far as to say that:

> [l]anguage and music involve domain-specific representations […] [and] when similar cognitive operations are conducted on domain-specific representations, the brain shares neural resources between the two domains. […] Hence it is possible to observe similar brain signatures for certain aspects of linguistic and musical processing. (Patel 2012: 206f.)

Patel appears to take a mediating role between the two research areas in order to find ways to link these contradictory findings, which might stimulate and guide future research. Interestingly, even Peretz (2012: 260) seems to have readjusted her claims by acknowledging that the systems and components involved in the processing of language and music are shared between the two domains. Still, Besson and Schön (2012: 289) do not appear to swerve from their conviction and conclude that the most recent studies point to and are clearly in favor of an interactive and integrated view of the cognitive systems of music and language, which makes them believe that the concept of modularity has undoubtedly served its time. Although reconciliation within the research domain does still not seem to lie ahead, it might be inferred from these recently attempted rapprochements that the truth about cognitive processing of music and language lies somewhere in between and might only be revealed by making combined efforts.

2.2.2 Song perception and the relation of lyrics and tones

Within the vast research field of cognitive sciences the study of songs represents a very specific research issue. Indeed, songs combine both music and language and thus lend

themselves perfectly to the study of the cognitive relation between language and music in song perception and processing (cf. Besson and Friederici 2005: 58; Fedorenko et al. 2009: 1; Gordon et al. 2010: 1; Peretz et al. 2004: 142; Schön et al. 2005: 71). Obviously, the opposing views existent in the entire research field can also be traced within this specific research area.[3]

The aim of Besson et al.'s (1998: 494) study was to investigate whether listeners of a song can differentiate musical and linguistic aspects of the song or if they treat them in an integrated way. By means of electroencephalogram recordings (EEG) Besson et al. (1998: 494) analyzed event-related potentials (ERP), which is a method that basically records the "electrical activity" of the brain. The ERPs were recorded while professional opera musicians listened to sequences from a capella operas. These sequences closed with "semantically congruous or incongruous words", which were presented at times in or off key (Besson et al. 1998: 494). The findings of the study showed that neither semantic incongruities could affect the musical processing nor did musical incongruities affect the semantic processing negatively. In this respect, Besson et al. (1998: 497) infer from these results that violations on either a semantic or harmonic level are treated independently in song perception and processing even if these two aspects are strongly entangled in their representation in the song. Similar results have also been reported from a replicate study conducted by Bonnel et al. (2001: 1201).

As reported earlier, several studies in the field have been conducted with agnosic or amusic patients. One of these studies by Hébert and Peretz (2001: 169) investigated whether tunes and lyrics are separable by amusic patients. In addition to the amusic patients, control subjects who did not suffer from any form of brain damage also participated in the study. The study used songs familiar and non-familiar to the participants and mismatched melody and lyrics so that songs with familiar lyrics, but unfamiliar melody and vice versa were created. Similar to the results of other studies in the field, the amusic patients were able to concentrate on the lyrics and the judgment of whether they were familiar or not without having been distracted by the incongruous melody. The truly interesting result of this study is that the normal control subjects were unable to perform the task and thus could not focus on either aspect independently. These findings might lead to the assumption that melody

[3] With some studies it is difficult to differentiate clearly between studies that focus merely on the relation between language and music and those which also hint at song perception and processing. Hence, some studies that were already mentioned in earlier sections also relate to this section, but will not be discussed in detail at this point.

and lyrics are integrated, but Hébert and Peretz (2001: 169) concluded that this only shows a "strong association". In another study by Groussard et al. (2010: 2764) using positron emission tomography (PET), the focus was on the comparison of the networks activated by musical and linguistic semantic memory. Participants were asked to decide whether two parts of familiar musical or familiar linguistic excerpts they listened to matched. Results showed that even though a shared network is activated by musical and linguistic processing, a preference for certain brain hemispheres could be traced:

> [R]ight hemisphere regions are involved in the retrieval of melodic traces in perceptual memory, and left brain areas are linked to access to [sic] nonverbal and verbal semantic attributes. (Groussard et al. 2010: 2772)

These findings do not provide a strong support for the independence of musical and linguistic information storage and processing. Moreover they even suggest hemispheric preferences of music and language.

In contrast to these studies, a number of studies have been published which clearly refute the claim of the independence of lyrics and melody. For instance, Schön et al. (2005; 2010), by means of functional magnetic resonance imaging (fMRI) and a procedure similar to the one used by Groussard et al. (2010), further support the claim that similar brain networks are involved in musical and linguistic processing (Schön et al. 2005: 77; 2010: 458) by reporting about "a large overlapping network for language, music and song perception" (Schön et al. 2010: 460). What they additionally were able to show was that the melody has a considerable influence on the perception and processing of phonological aspects and "lexical access". These inferences stand in sharp contrast to what has been revealed by Besson et al. (1998).

These recent findings propose a close interaction of lyrics and melody at later stages of processing that is not given at earlier stages[4] (cf. Schön et al. 2010: 459). Interestingly, Schön et al.'s study was a companion study to Gordon et al.'s (2010) study, both of which used the same stimuli and tasks, but Gordon et al. employed EEG and furthermore gathered behavioral data. Again, findings proposed an "automatic processing" of musical and linguistic features when words are presented in a sung condition due to the incapability of healthy human beings to concentrate on one component only. This is basically in line with what has been observed by Hébert and Peretz (2001). More important is that both data indicate a

[4] In this case the terms *early* and *later stages* indicate the time span between hearing a song, i.e. a melody and lyrics, and the actual processing of the words and melody that have just been heard (Gordon et al. 2010: 8f.).

remarkable interaction in processing of linguistic and musical features in song. Yet, contrary to Schön et al. (2010), Gordon et al. (2010: 9) argue for a strong interaction in the cognition of both lyrics and melody also at an early stage of cognitive processing.

Schön et al. (2005; 2010) already alluded to the possibility that musical features may interfere with linguistic processing. In this respect, similar results were reported in the studies by Bigand et al. (2001) and Poulin-Charronnat et al. (2005). Both applied conditions of congruity and incongruity of musical and linguistic information in order to reveal influencing and relating effects. While Bigand et al.'s (2001: B11) study confirmed that musical elements, in particular harmony, affect the phonological processing of words irrespective of the participants' musical proficiency, Poulin-Charronat et al. (2005: B73) expanded their investigation on semantics and suggest that the harmonic structure affects semantic processing of linguistic elements as well. It could also be shown that not only the harmonic, but also the semantic context in which words are presented affects linguistic processing. Again, these findings are not consistent with results found by Besson et al. (1998). Rather detailed and astonishingly interesting results were gained from a study by Kolinsky et al. (2009: 1), who likewise investigated the processing of melodic and phonological dimensions of song. According to their study results, it appears that vowels and consonants are not treated equally in cognitive processing which is due to the fact that vowels interrelate with intervals and melodic information while consonants are processed separately from melody (Kolinsky et al. 2009: 16). As remarkable as these results are, they obviously suggest that the relation of music and language in song might be characterized by an even higher complexity than previously expected.

Further support for an integrated and interactive processing of linguistic and musical features was provided only recently by Fedorenko et al. (2009), who were interested in musical and linguistic syntax. In their study, Fedorenko et al. (2009: 1) manipulated linguistic complexity by constructing different relative clauses as well as musical complexity by playing in-tune and off-tune critical notes in order to present these stimuli within sung sentences. A significant interaction between linguistic and musical syntactic complexity could be traced, as the out-of-tune condition affected the processing of linguistic complexity considerably.

Having tried to give an account of the current state of research on song perception and how lyrics and tunes may be cognitively processed, a conclusive answer to the question whether they are interactively related or rather single entities seems impossible to provide

at this point. What is possible at this point, however, is to advance that evidence for a partial integration of musical and linguistic features in song perception and processing is adequately provided and thus can validly serve as part of the theoretical basis for the present study.

2.3 Music as a memory aid

There is a widely held belief that music and in particular its melodies function as an effective memory aid as regards linguistic and verbal information. Adults often experience a seemingly effortless recall of lyrics of well-known songs from childhood or adolescence often by only hearing the initial chords of a song[5] (cf. Anton 1990: 1167; Rainey and Larsen 2002: 173; Wallace 1994: 1471). These days, companies spend huge sums of money in order to take advantage of and exploit this effect (cf. Anton 1990: 1167). A small number of studies interested in this common belief have been conducted and will be presented subsequently. Furthermore, reasons for an enhanced recall with the aid of music will be revealed by integrating insights from various disciplines.

2.3.1 Music and the promotion of verbal recall

Apart from cognitive aspects in song perception, the question of whether music and melodies can aid the recall of text or not is worth being investigated. However, only a few studies focus on the investigation of the influence of music on text recall. Most of the studies contributed significantly to the research design of the present study of this thesis[6].

To the best of my knowledge, one of the earliest studies was conducted by Gingold and Abravanel (1987: 25ff.) assessing immediate and delayed recall of song lyrics of 5- and 7-year-olds. For this purpose, 112 subjects listened to a sung or a spoken version of an exceptionally short and easy children's folk song until they were able to reproduce 85% of it twice. No difference in the number of trials needed in order to reach this condition was found among the treatment groups. Likewise, the immediate recall five minutes after the last exposure to the song or text did not yield any differences. Remarkable is the fact that

[5] Bartlett and Snelus (1980: 551) even conducted a study on "lifespan memory for popular songs" investigating the recall of lyrics of songs from 1921-1974. Middle-aged to elderly subjects showed robust evidence for the existence of a precise memory for the songs examined.

[6] For more information on the present study and which study elements are similar to previous studies, please see the chapter on research methodology (chapter 5).

the delayed recall test held after a week showed that 5-year-olds recalled a greater number of words when presented in the form of song, while the 7-year-olds' recall performance was better in the text condition. Still, the non-demanding lyrics can be clearly identified as a severe limitation of this study.

A slightly different approach was taken by Chazin and Neuschatz (1990: 1068), who tested the mnemonic effect of songs on recall of unknown scientific knowledge on minerals. The information on minerals was either presented in the form of familiar song or in the form of speech. The 46 subjects, 8-year-olds and 18-21-year-olds, were given the information additionally in written form while they listened to the stimuli three times. Afterwards, they were asked to write down freely what they could remember. Results showed an increased recall of information when presented in the form of song.

Wallace (1994: 1473) yielded similar results with her examination of text recall performances in four experiments by using ballads. The first experiment compared immediate and delayed text recall performances (20 minutes after the immediate recall test) of 64 participants after having listened five times to either a sung or a spoken version of a ballad. Participants were asked to write down freely what they remembered. Results demonstrated that immediate as well as delayed text recall was most significantly facilitated in the sung condition. Experiments two through four indicated that melody was more effective in regards to text recall performances than rhythm; melody could however not facilitate text recall when verses were not repeated or when the melody was not repeated.

Only two years later, McElhinney and Annett (1996: 396) replicated a study originally performed on Alzheimer's patients (cf. Pricket and Moore 1991) with non-Alzheimer's subjects yielding positive results on text recall with music. In both studies unknown lyrics as well as unknown melody was used, which constitutes a major difference to the study by Chazin and Neuschatz (1990) presented previously. Again, the 20 subjects were divided into a song and a prose treatment group and presented with the respective recording for three times. After each trial, participants again noted down freely what they recalled. Results reflect those of previous studies reporting a significantly higher number of words recalled in the song condition. Furthermore, it is observable that recall performances in the song condition show a more frequent occurrence of chunked material, i.e., larger units of information. (cf. McElhinney and Annett 1996: 398f.)

The largest study on this issue so far is a study by Smith Salcedo (2002; 2010). Her (2010: 23f.) study set out to examine immediate and delayed text recall performances of 76 (originally 94) foreign language learners of Spanish with a mean age of 22. For this purpose, three Spanish folk songs and ballads and spoken recordings of them were presented respectively to a song treatment and a text treatment group while both groups were given the text to read or sing along. Additionally, a control group as well as a third treatment group was installed, who received the identical treatment as the song group while the testing was different. The testing of text recall was carried out by means of a cloze test with every seventh word of the lyrics deleted. Furthermore, the additional third group could listen to the melody of the song also during their recall tests (i.e., melody group). The delayed recall test was administered two weeks after the immediate recall test. Interestingly, two of the songs elicited significantly higher immediate recall scores in the music treatment group, whereas with one song no significant difference was observable. As regards delayed recall it can be reported that even though music treatment group participants' recall scores were higher, again a statistically significant difference could not be found. For the melody group no consistent results were found. Overall it needs to be remarked that even though results were not always statistically significant, the music treatment group outperformed all other groups in all testing situations. (cf. Smith Salcedo 2002: 91ff.)

A comparably large study by Rainey and Larsen (2002: 179ff.) assessed the effect of music on the recall of unconnected text, in particular unknown names, presented either spoken or accompanied by the melody of "Pop Goes the Weasel" in two experiments. The 79 participants' recitation of the names did not show a significant difference in the immediate recall, but a week later those participants who learned the names via the song did achieve significantly higher recall scores. In this respect, eventually evidence was found for an improved long-term recall when presenting information via songs compared to spoken presentations.

Despite this rather positive evidence for a facilitation of the recall of verbal information through music, one study exists that does not confirm the positive mnemonic effect of music. Racette and Peretz (2007: 242ff.) contrasted recall performances of 36 French university students, among them musically trained as well as untrained subjects, in three treatment conditions. The first treatment group listened to excerpts of six unfamiliar a

capella songs in French, which contained only few repetitive elements in terms of language and music. The testing format for this treatment group was singing. The second treatment group received an identical treatment; however, it was tested in a spoken format. The last treatment group listened to a spoken version of the lyrics accompanied by the music and the testing was conducted in a spoken format. In contrast to previous studies, those participants who were tested in a spoken format achieved the highest recall scores, while for the input format no significant performance differences could be revealed. These observations hold true for both immediate and delayed recall tests, whereas the latter of the two was administered only after seven months. In the light of their findings, Racette and Peretz (2007: 250) reach the conclusion that "the best strategy for learning song lyrics is to ignore the melody". However, it might be argued that these findings may have been a result of the lyrics chosen.

This brief overview of the most important studies on verbal recall and the effect of music as a mnemonic seems to fall short of being conclusive. This might be due to the limited number of studies available and just as much due to their variety of research designs, testing formats, materials, number of participants, and research interests pursued. Still, it cannot be denied that a positive correlation between verbal recall and the employment of music can be drawn. Even though results occasionally do not reach significance, the overall impression is given that the effect of musical treatment on verbal recall seems to outweigh the effect of merely spoken presentations of information. The following section therefore attempts to shed light on the underlying reasons for the success of music as a mnemonic device.

2.3.2 Conceptual and theoretical foundations

In the light of the findings of the previously presented studies researchers have hypothesized on possible reasons how and why music allows for a facilitated, enhanced, and in some cases even prolonged recall of verbal information. In this relation, issues such as speed, song choice, characteristics of the carrier melody, as well as familiarity and unfamiliarity of lyrics and melody are discussed (cf. e.g., Racette and Peretz 2007: 242ff.; Smith Salcedo 2002: 51; Wallace 1994: 1483f.). To condense these claims, the reduced speed with which words are presented in a song compared to natural speech may aid the word recall; secondly, in order

to achieve a facilitating effect on recall, words in a song need to be as clearly audible as in natural speech. Thirdly, the carrier melody needs to be clear, repetitive, and simple in order not to represent a burden. In other words, melodies that are complex and do not recur might even hinder verbal recall. Fourthly, similar features have been suggested as regards the lyrics of song, which obviously contribute positively to recall. For instance, logical and everyday word choices, repetition, as well as simple textual structures can be mentioned in this respect. (cf. Racette and Peretz 2007: 242ff; Wallace 1994: 1473ff.)

The issue of familiarity or non-familiarity is a controversial one. As can be seen in the studies above, a consistency in research design is not given. Criticism has been leveled against those studies using familiar tunes and matching them with new words or verbal information mainly because it is believed that once a song is familiar melody and lyrics have been learned together which leads to interference problems when new words need to be attached to a well-known melody (cf. Smith Salcedo 2002: 51). Conversely, Chazin and Neuschatz (1990: 1068) argue that precisely the familiarity with the tune would contribute to a facilitated recall. Unfortunately, the limited number of studies does not allow for generalizations on the influence of these factors on the studies on verbal recall as well as on verbal recall itself. Additionally, a major drawback common to most of the recall studies is that they fail to base their hypotheses about the underlying mechanisms of a facilitated verbal recall on a proper theoretical model trying to explain and give reasons. Subsequently, three main models that might serve as a theoretical basis are provided and discussed. Beforehand, it needs to be noted that the issue of the storage of music and language and thus melody and lyrics will not be addressed within the following discussion. Still, most researchers concerned with the study of verbal recall and music seemingly tend to favor the belief of an integrated storage of lyrics and melody.

Since music is commonly cited as a mnemonic device by such studies, one of the primary questions that needs to be clarified is what actually defines a mnemonic device in order to determine whether music embodies these prerequisites. According to Ashcraft (2002; cited in Rainey and Larsen 2002: 177), an effective mnemonic device is marked by three characteristics. Firstly, it helps to organize learning; secondly, it “provides a distinctive memory record” which hinders a loss of this particular memory; and thirdly, it serves as a guideline for the learner in the recall process.

According to a number of researchers (cf. e.g., McElhinney and Annett 1996: 399; Gingold and Abravanel 1987: 25; Peretz et al. 2004: 142; Rose 1985: 4; Wallace 1994: 1482) rhythm is identified as a powerful cue for retrieving verbal information. Moreover, especially the matching of prosodic features of text, such as pauses, accents, and rhythms, with the music is mentioned as a supportive condition for retrieving information (cf. Gingold and Abravanel 1987: 26). In the most thorough account of influential aspects, Wallace (1994: 1482) goes beyond the identification of rhythm and convincingly argues for the utmost significance of melody as the provider of "an information-rich context that is critically connected to the text". Melody also provides an abundance of information about a number of textual features and thereby creates "access points" to memory (Wallace 1994: 1472). Apart from that, information about the order and sequence of phrases, its constituting elements, and syllables is encoded in melodic cues and may prevent learners from unconsciously skipping verbal information. On the other hand, information on line length and number of syllables inferred from the melody also aid learners in reconstructing a missing line and searching for the appropriate textual units. (cf. Wallace 1994: 1472ff.) Another crucial assumption about the mnemonic power of music and in particular melody is its ability to reorganize single linguistic elements, such as words and phrases, into larger chunks, a process which facilitates learning and verbal recall tremendously. Evidence for this effect has already been found in the study by McElhinney and Annett (1996). All these observations apparently fit quite well into the characterization of a mnemonic device, since the organization of learning is facilitated by the chunking capabilities of the melody, the contextualized and rich information provided by melody and text can be regarded as a unique memory record, and lastly, rhythm, other prosodic features, and most notably melody represent a framework that guides the entire recall process[7]. In this respect, the axiomatic assumption that music has a mnemonic power needs to be recognized.

A further aspect not covered by the characteristics of a mnemonic device is the assumption that not only is the melody a cue for the text, but also vice versa (cf. Gingold and Abravanel 1987: 25; Wallace 1994: 1471). The appropriate term for this type of relationship is priming, which is a paradigm originally used in psychology and psycholinguistics, but which has extended also to other research areas (cf. Balota 1994: 334). Typically, it is "defined as a modification in performance due to the prior processing of an item that is related to the

[7] Wallace (1994) has already alluded to all of these valuable potentials of music and melody, but unfortunately failed to embed it in the theory of mnemonic devices.

target" (Peretz et al. 2004: 143). Specifically this means that a certain stimulus – the prime – establishes a connection with a certain memory by activating it. This activation consequently extends to related memories, among them the target, and thus causes an improved processing of this target (cf. Peretz et al. 2004: 143). In order to examine the relation of lyrics and melody in memory as well as the underlying priming effects, Peretz et al. (2004: 142ff.) performed a series of experiments using a priming technique, either melody or lyrics being the prime or target. The outcomes of their study indicate an equally facilitated recognition of targets for both prime conditions, i.e., melody and lyrics. Beyond that, it has been shown that priming effects work in two directions, forward and backward, which specifically means that the beginning of a song (either lyrics or melody) was more easily recalled when either lyrics or melody of a later part of the song was presented. Further interesting insights from this study are that lyrics are generally recognized in half the time needed to recognize the melody of the same song and the identification of a song's beginning is usually less difficult compared to other parts of the song. Interestingly enough, again rhythmic parallels between language and music are quoted as the underlying explanation for the effectiveness of priming. The overall findings led Peretz et al. (2004: 142) to the conclusion that "text and tune are related by tight connections that are bidirectional" and thus "allow automatic access from text to melody and vice versa" (150). From this conclusion it may additionally be inferred that even if language and music might be stored in two distinct neural networks or brain areas, a close interrelationship between the two must be assumed.

While most of the recall studies find some theoretical affiliation to either the concept of the mnemonic device or to that of priming, to the best of my knowledge only two studies devote themselves to a third and in relation to verbal recall little researched phenomenon. This phenomenon commonly known as catchy tune was most likely unconsciously addressed by Rainey and Larsen (2002: 184) when commenting on their study of verbal recall:

> [T]hose in the song condition experienced "hearing" the melody […] and rehearsed their list [of names to be learned] automatically when the melody came to mind.

This form of mental playback first sparked interest in the early 1980s among a handful of linguists who were engaged in the research field of foreign language learning. The first attempts to approach the phenomenon are mere descriptions of experiences and clearly

unempirical as well as rather anecdotal evidence in the context of foreign language learning reported by Barber (1980) and Krashen (1983)[8].

Regarding the terminology, the phenomenon is broadly referred to as involuntary musical imagery (INMI) or involuntary mental rehearsal, a term generally used in psychology. Yet another term for the same phenomenon is din, which is said to usually occur after a certain amount of exposure to a foreign language (cf. Smith Salcedo 2002: 55). Krashen (1983: 41) straight-forwardly defines it as "an involuntary rehearsal of words, sounds, and phrases". In the 1990s, Tim Murphey (1990a: 58) coined another term, the song-stuck-in-my-head phenomenon (SSIMHP), which similarly describes the constant playback of a song or its tunes in one's head. The ultimate association of the din and the SSIMHP is what has been termed the musical or melodic din (cf. Murphey 1990a: 53; Smith Salcedo 2002: 55), although the boundaries between the din, the SSIMHP as well as the melodic din are blurred. Numerous studies (cf. e.g., Bedford 1985; de Guerrero 1987; McQuillan and Rodrigo 1995; Parr and Krashen 1986; Sevilla 1996; Smith Salcedo 2002; 2010) have investigated and confirmed the occurrence of the din after the engagement with foreign language learning. By summarizing the first three studies in the field by Bedford (1985), Parr and Krashen (1986) and de Guerrero (1987), Murphey (1990a: 54) evaluated that 74.9% of the total number of 581 foreign language learners investigated reported experiences with the din. Moreover, especially listening activities can be identified as exceptionally successful triggers of the din (Smith Salcedo 2002: 56). In elucidating the rationale behind the din, Krashen (1983: 43) as well as Murphey (1990a: 58) both refer to the language acquisition device[9] (LAD). Murphey (1990a: 58) explains this causal relationship as follows:

> [T]he LAD, sparked by listening and subvocalization, activates a Din in order to chew on elements and schemas for acquisition.

Further suggestions have been made concerning the characteristics of the input which can activate a din, but only partial agreement could be found. While Krashen (1983: 43) believes

[8] It is worth consulting the stories of Elizabeth Barber (1980), an American linguist and archeologist, about her journeys to Eastern Europe and her personal experience with this form of mental playback. Likewise, Stephen Krashen (1983), also a renowned linguist, shares similar personal experiences with the interested reader.

[9] The LAD is the innate ability to learn languages and draws on innate rules and principles represented by the so-called universal grammar (Chomsky 1965; Larsen-Freeman and Long 1991; Lightbown and Spada 1999). This concept is however perceived as rather outdated today. Further information on this innatist view on language acquisition will be provided in chapter 3.

that it needs comprehensible input, which additionally contains partly new input[10], Murphey (1990a: 60) argues that especially in relation with the SSIMPH comprehension is not necessarily required for the activation of the din. Additionally, Krashen (1983: 44) asserts that a minimum of one to two hours of input are needed in order to activate the din, which then would fade away only a few days later. In contrast, Murphey (1990a: 60f.) claims that with songs, a din might set off only minutes after having received the input and possibly stays with the listener for years. The phenomenon that music has the power to stay for extended periods has also been commented on by Wilcox (1996: 10; cited in Smith Salcedo 2002: 62), who emphasizes that thereby the "mental stimulus" becomes improved and facilitates learning. Similarly, also Murphey (1990a: 61) alluded to the superiority of musical input although he does not have any empirical evidence:

> If involuntary rehearsal is the humming of the efficient LAD, music and song may initially play an associative facilitating role in engaging and stimulating it.

Astonishingly, more than ten years passed before the effectiveness of this form of INMI was related to a study on language learning and in particular to the verbal recall study by Smith Salcedo (2002; 2010). Results revealed that the song treatment correlated positively with the din occurrence, which in other words means that 66.7% of the participants from the song condition reported a din experience, while only 33.3% from the text condition did so. Those participants assigned to the melody group reported the highest din occurrence with a remarkable 78% of the participants. This extraordinarily high figure might be attributed to the fact that this particular group heard the melody one additional time. Yet, a clear limitation of her research on the din occurrence in relation to the recall study is that only 44 of the 94 participants volunteered information on the din. (cf. Smith Salcedo 103ff.)

Interestingly, while there has been considerable interest in the din and its occurrence after exposure to foreign language, a dearth of research studies can be reported regarding the general phenomenon of INMI. Only recently, i.e., in the past few years, have researchers (cf. e.g., Beaman and Williams 2010; Kraemer et al. 2005; Likkanen 2008; Wiliamson et al. 2012) become increasingly interested in the phenomenon and have finally gained first interesting insights, some of which are also relevant to this study. In 2005 researchers (Kraemer et al. 2005: 158) finally succeeded in locating INMI in the primary auditory cortex

[10] In Krashen's (1985) input hypothesis he asserts that language can only be acquired by the exposure to comprehensible input, which should contain language elements and structures slightly beyond what a learner has already acquired. He refers to this input as "i + 1".

in the brain by using fMRI. Moreover, results of the largest study on INMI carried out by Likkanen (2008: 408) among 12,420 Finnish people showed that 90% of all participants experience INMI at least every week. The most common form of INMI was shown to be music (59.3%) of which 77% was lyrical music, i.e., music accompanied by lyrics. Another study (Beaman and Williams 2010: 637) on INMI revealed that earworms of people who consider music important are usually longer and less controllable. As INMI or to be more precise, the din, is ascribed the power of aiding acquisition and promoting recall, lyrical music seems to be the best choice for triggering this process. Interestingly, the industry of language learning has already discovered the power of the earworm in foreign language learning and consequently an audio method in which phrases and vocabulary are taught through the use of music was developed. Scientifically, the promised success of this method is based on INMI, which is why they named their product "earworms – the musical brain trainer" (www.earwormslearning.com).

In brief, three major theoretical concepts, namely the mnemonic device, priming, and the phenomenon of INMI or the din, have proven to serve as an adequate basis for most of the studies focusing on text recall from songs. Considering the missing theoretical links in most of the studies presented as well as the limited number of studies available on verbal recall in relation with songs in general, this study represents another step to resolve this deplorable situation. Still, a call for further research needs to be expressed here. The entire chapter on language music and the brain has moreover illustrated that despite its controversial nature, the abundance of studies presented hint at an at least partially integrated cognitive origin of the two systems and even more strongly indicate a cognitive interaction between them. Indeed, it seems to be this interaction that allows for specific cognitive processes and thereby possibly renders music as an evidently powerful vehicle for memorization processes of verbal and textual information.

3. MUSIC IN FOREIGN LANGUAGE ACQUISITION AND ADOLESCENCE

The investigation of music as a facilitating tool in memorization processes not only requires the detailed examination of the cognitive processes involved, but also a solid positioning within a theory of learning. As the present study focuses on the recall of foreign language,

this chapter aims to review foreign language acquisition theories and to identify points of contact as evidence for the justification of the integration of songs and music in this acquisition process. The latter part of this chapter is concerned with the developmental phase of adolescence, in which most of the foreign language learning of Austrian pupils takes place, and discusses the role music plays in this phase. Furthermore, the genre of pop music deserves a detailed consideration due its prominent status among Austrian adolescents.

3.1 Foreign language acquisition

The first part of this subchapter introduces some of the main theories of foreign language learning and acquisition, tries to find links to music and songs, and aims at positing them as appropriate and beneficial mediums in the foreign language learning process. In the second part, some language learner histories are discussed in the light of foreign language acquisition theories as well as references to the role of music and songs are highlighted.

3.1.1 Foreign language acquisition theories and how songs fit in

It is estimated that within the interdisciplinary field of FLA more than 40 theories have been elaborated from the 1950s onwards (cf. Larsen-Freeman and Long 1991: 227; Matsuoka and Evans 2004: 2). Nevertheless, three key trends can be distinguished in the development of theory building, namely linguistic, cognitive, and sociocultural approaches, which all focus on different aspects in the language learning process (cf. Hall et al. 2011: 2). Some of the most important FLA/FLL theories which also show a certain relevance to this present study shall be introduced briefly.

Behaviorism emerged in the 1950s and is based on a stimulus-response theory which defines structures as the building blocks of language and therefore promotes the acquisition of it in terms of imitation which is supposed to lead to habit formation. According to this theory, foreign language learners receive linguistic input from their environment and thus establish connections between words and, for instance, real-life objects. Through repetition, these connections become stronger and imitation becomes automated. (cf. Lightbown and Spada 1999: 35; Matsuoka and Evans 2004: 2; Menezes 2009: 2) As will be shown

subsequently, this need for repetition is not only part of behaviorism, but represents also a core element in connectionism. Interestingly, behaviorism does not at all take into account mental processes, which has been criticized for a long time (cf. Johnson 2004: 18). In their overview of FLA theories, Lightbown and Spada (1999: 36) conclude that "behaviorism is at best an incomplete explanation for language learning". Larsen-Freeman and Long (1991: 266), who are not convinced of behaviorism, still accept it as having a positive impact regarding "pronunciation and the rote memorization of formulae". Even though behaviorism might be regarded as an outdated concept, elements of it, which clearly also stem from connectionism, can still be found in teaching approaches and methods today. For instance, Ellis (2005: 210) proposes the teaching of formulaic expressions as one of ten principles for language learning. Moreover, an entire teaching approach, the lexical approach, centers on the teaching of so-called "multiword lexical units", in other words chunks, and "memorized patterns" by arguing that they amount for a large proportion of fluent speech (cf. Richards and Rodgers 2001: 132f.). In this respect, it might be legitimate to argue that songs, due to their repetitive nature and their positive impact on the memorization of chunked language (cf. chapter 2 as well as McElhinney and Annett 1996; Racette and Peretz 2007; Wallace 1994), could at least partly be based on a behaviorist language learning theory. Beyond that, as can be seen in some teaching principles, songs might serve as a potent medium in the lexical approach or in the teaching and learning of formulaic expressions.

From the 1960s onwards behaviorism was superseded by a new movement in theory building called innatism, which was initiated mainly by Chomsky's works in the field of nativism (Matsuoka and Evans 2004: 2f.). Chomsky promoted the notion of universal grammar (UG), innate knowledge that allows for the acquisition of the mother tongue, which is based on the inborn ability to learn languages termed the 'language acquisition device' (LAD)[11] (cf. Larsen-Freeman and Long 1991: 114; Lightbown and Spada 1999: 36). The only link worth pointing out between music/songs and this innatist theory is the LAD. This has been established by Krashen and Murphey (cf. chapter 2.1.2) by relating the occurrence of INMI (i.e., the din) in FLL to the LAD. As elucidated, the LAD after potentially being activated by language input might set off the din in order to process and acquire new language elements and structures (cf. Murphey 1990a: 58). Given that the theory of UG,

[11] Interested readers are referred to the original works of Chomsky (1957; 1965) as well as more recent introductions to universal grammar (Cook and Newson 2007).

apart from the relation to the din, does not show any relevance for the use of music or songs, no further discussion will be provided.

The monitor theory (MT), also influenced by innatism, was developed by Krashen and is a well-known and influential FLA theory consisting of five hypotheses; the acquisition-learning hypothesis; the monitor hypothesis; the natural order hypothesis; the input hypothesis; and the affective filter hypothesis (cf. Krashen 1982: 9ff.; Larsen-Freeman and Long 1991: 240; Lightbown and Spada 1999: 38f.), though, only a few hypotheses apparently represent a link to music and songs. In his first hypothesis, Krashen distinguishes between acquiring and learning a language; the former being a subconscious and implicit process activated when a learner is exposed to comprehensible foreign language samples without focusing on language form. Krashen relates this process to the way the first language is acquired. The latter conversely refers to the less significant process which is a conscious one and involves the study of and a focus on language form and rules. (cf. Krashen 1982: 9; Larsen-Freeman and Long 1991: 240; Lightbown and Spada 1999: 38) This hypothesis might be relevant to music and songs as they lend themselves to a subconscious acquisition of language. Evidence for incidental and thus subconscious language acquisition through pop songs in out-of-school contexts was found in a study by Schwarz (2012: 134). Krashen's input hypothesis implies that only through the exposure to comprehensible input can language be acquired. In order to advance one's language level (i.e., i), it is crucial to understand input that is just beyond the current language level (i.e., i + 1). (cf. Krashen 1982: 20f.; Larsen-Freeman and Long 1991: 242; Lightbown and Spada 1999: 39) Essentially, the implications of this hypothesis can be transferred to any medium of language input by considering the competence level in the choice. Still, Krashen (1982: 21) asserts that comprehending i + 1 does not imply an understanding of the language form, but rather the meaning. In this regard, songs might provide the learner with the necessary extra-linguistic information for the vital process of meaning-making[12]. The affective filter hypothesis can be connected most clearly to songs and music. According to Krashen (1982: 32), input has to pass the so-called affective filter in order to become used for language acquisition in the LAD. The term affective or affect refers to factors such as motivation, self-confidence, and anxiety. Krashen (1982: 32) argues that learners with a good attitude towards learning have low affective filters, while the reverse is true for learners with less good attitudes. Therefore, the affective

[12] Unquestionably, issues such as authenticity as well as the linguistic nature of lyrics would deserve an in-depth discussion at this point; an examination of these issues will however follow only later, in chapter 4.1.1.

state of a learner can either hinder or facilitate the acquisition process, because his or her affective filters are either up and block input or down and promote acquisition. In fact, the influential nature of learner characteristics, such as intelligence, aptitude, personality, but also learner beliefs, preferences, motivation, and attitudes on the FLA process has gradually become acknowledged in the research field (Ellis 2005: 220; Lightbown and Spada 1999: 51). Furthermore, Krashen's works had a considerable impact on the development of the communicative language teaching approach (CLT)[13]. Nevertheless, his MT has received severe criticism for instance in that his hypotheses cannot be tested on an empirical basis (cf. e.g., Lightbown and Spada 1999: 40).

In terms of language teaching situations, Krashen (1982: 32) makes an interesting conclusion by stating that:

> The effective language teacher is someone who can provide input and help make it comprehensible in a low anxiety situation.

Apart from the provision of input, songs might also embody the ideal medium for the creation of a classroom atmosphere that helps to lower the affective filters of the learners. This inherent ability of music and songs will be further discussed in chapter 4. So far it can be noted that when discussing the use of music and songs in relation to language acquisition theories it is most common among researchers to consult Krashen's hypotheses, in particular the affective filter hypothesis, and they often use Krashen's works as the exclusive basis for their argument (cf. e.g., Cruz-Cruz 2005; Medina 1990; 2002; Sağlam et al. 2010; Smith Salcedo 2002; 2010; Sposet 2008; Stansell 2005; Zhang 2011). Reasons for the preference for Krashen's MT as the theoretical FLA basis might be its sheer popularity as well as the intuitive accountability and comprehensibility of his hypotheses.

At this stage of FLA theory research, the field became more and more open to other disciplines and from then on it has developed its interdisciplinary character (Matsuoka and Evans 2004: 3). Psychological theories, coming from cognitive psychology in particular, took an interest in FLA theory building. One of these is connectionism, a theory ascribing the environment as of the greatest importance in the FLA process. Unlike innatists, connectionists believe that just the ability to learn is innate, while knowledge can only be built through language exposure. In this respect, the role of input becomes crucial and is

[13] CLT stands for the development of communicative competence, involving linguistic, pragmatic, discourse, and strategic competence, as well as fluency. Its inception in the 1970s and 1980s caused a paradigm shift in English language teaching methodology. Interested readers are referred to Hedge (2000), Richards (2006), and Richards and Rodgers (2001).

perceived as the main source of knowledge. Language learning is a process of strengthening neural connections through input, which is presented repeatedly and in special situations or language contexts. A situational aspect might then be able to trigger a language element and vice versa. This form of learning is called parallel distributed processing (PDP). (cf. Larsen-Freeman and Long 1991: 250; Lightbown and Spada 1999: 42). Ellis (1998: 631) further believes that:

> [S]imple learning mechanisms, operating in and across the human systems for perception, motor-action and cognition as they are exposed to language data as part of a social environment, suffice to drive the emergence of complex language representations.

Music appears to constitute a vehicle that touches upon perception and cognition and it might also sometimes activate motor-action. Combining it with linguistic input and a social learning situation may consequently cause this favored state described by Ellis. Connectionism therefore might serve as a potent basis for the justification of music and songs in FLA also because music provides additional situational cues for the acquisition of linguistic elements and thereby promotes verbal recall as could be seen in the studies discussed in chapters 2.2.2 and 2.3.

Another promising theory that informs FLA research is the sociocultural theory (SCT), which is based on Vygotsky's works from the 1920s and 1930s. SCT claims that language and its acquisition are both socially mediated and therefore the use of the language in real-world situations is seen as crucial to the acquisition process. In SCT, the input as such is not in the common interest whereas language is perceived as the basis for participation in situations and events present in everyday life. In this respect, the context in which the learning situation is embedded allows for specific perceptions, memories, developments, and forms of learning. It is only in the next step that language is reconstructed on an individual and psychological basis. According to SCT, teaching should therefore focus on social situations in which learners can participate in activities with a communicative and meaning-making aim. (cf. Hall et al. 2011: 6; Menezes 2009: 7f.; Zuengler and Miller 2006: 37f.) Clearly, SCT has many more aspects and numerous implications for FLA and teaching approaches not all of which can be discussed at this point. Yet, an element closely related to SCT and Vygotsky – the concept of inner speech – will still be an issue at a later stage in this chapter.

In a further step, Atkinson (2002: 530ff.) argues for the integration of both social as well as cognitive aspects when discussing language use and acquisition. He thereby tries to

unite cognitive approaches, among them connectionism and sociocultural approaches, such as SCT, in a fused theory called the sociocognitive approach, where both components are ascribed fundamental importance. Key elements that characterize Atkinson's approach are issues such as interaction, whereby he asserts that language is learned only through social interaction. Additionally, he argues that language needs to be recognized in its entire complexity involving ecological, contextual, and relational aspects of it in the world. The acquisition of language should focus on "participating in activity-in-the-world" since acting and participating in real-world situations are the driving motives for acquiring a language (Atkinson 2002: 537). In his concluding remarks, Atkinson (2002: 539) identifies one of the most essential implications of his theory for FLA and teaching:

> [S]ociocognitive approaches to SLA will provide a means by which second language learners can be seen as real people, doing something they naturally do – not as mere research subjects, or mere students, or mere sites for language acquisition.

It becomes clear that the sociocognitive approach takes a much broader view on the subject of FLA and, while fostering the belief in neural associations that are formed and involved in language production, it most significantly tries to relate language to its original function of meaning-making in real-life situations and contexts. The remaining question is still how to relate the use of music and songs in FLA to connectionism and even more importantly to a sociocognitive approach. The social and real-life component, which both approaches highlight, can be identified as an appropriate link to music and songs. Music and songs are undoubtedly an element that occurs in real-life situations and is very present in the lives of adolescents in particular (see chapter 3.2). According to Roberts et al. (2003: 156ff.) adolescents listen to music primarily for affective and social reasons, but also because of an interest in their lyrics, which often represent a source of advice on social and moral issues for them. Therefore, adolescents are also interested in the processing and discussion of lyrics (cf. Roberts et al. 2003: 159). Studies (e.g., cf. Hansen and Hansen 1991: 404) have shown that even if adolescents do not fully understand the lyrics when listening to a song they are still able to sense its basic meaning. In general it can be said that the higher the importance of music is to adolescents the more interested they are also in lyrics (Roberts et al. 2003: 159). In this regard, dealing with songs and especially their lyrics can be considered a common activity in adolescents' lives, where language seems to serve the purpose of meaning-making. Relating this to the social context of a teaching situation, the meaning-

making of a song's lyrics can occur collaboratively and thereby a communicative situation is created in which learners can act, interact, and participate. In turn, a very specific context develops for the actual learning situation. Apparently, sociocultural as well as sociocognitive approaches lend themselves as ideal basis for grounding music and, specifically, songs in FLA theory.

The last theoretical approach towards FLA worth consulting is the so-called "edge of chaos" theory, mainly influenced by chaos and complexity theories. The reason for this association lies in the many similarities found between FLA, language, and other complex systems. It is argued that neither behaviorism nor innatism may account for the learning of languages. Rather, it is again the complex interactions with the environment that are said to cause language learning. Nevertheless, when accepting that complexity and chaos is what governs FLA, all existing theories trying to explain FLA need to be acknowledged and finally become merged into a complex model as so-called subsystems. FLA is therefore seen as a complex process, in which chaos and unpredictability are of fundamental significance. (cf. Larsen-Freeman 1997: 141; van Lier 1996: 170; Menezes 2009: 10ff.; Thornbury 2001: 48) This theory identifies a state between chaos and order which allows the system to work at its best and refers to this as the edge of chaos. According to Oekerman (1997: 222; cited in Menezes 2009: 21), the ability to reach the edge of chaos is dependent on five factors:

> the rate of information flow, the degree of diversity, the richness of connectivity, the level of contained anxiety, and the degree of power differentials.

He is furthermore convinced that the combination of these factors leads to a state marked by a high degree of creativity. Menezes (2009: 21) attempts to transfer Oekerman's factors to FLA and proposes to view them as:

> the rate of exposure to the target language, the diversity of authentic input, the richness of interactions, the low level of anxiety, and the rate of autonomy or control of one's own learning.

On a closer examination of the factors suggested by Menezes, the contribution music and songs could make for learners to reach the edge of chaos is not negligible. Songs clearly extend the quantitative contact with the target language, broadens the range of input formats, and can be considered authentic[14]. Besides, they might trigger interaction with other learners as well as native speakers via mediums such as the internet. The effect of music on the learner's affective filters has already been discussed and is also partly due to

[14] As already indicated, a discussion on authenticity will follow in chapter 4.1.1.

the fact that it reduces stress and anxiety in the learning situation. How music and songs might be beneficial in terms of learner autonomy in a school setting is a question of the organization of a learning situation. Beyond, learner autonomy might be a factor more likely found in out-of-school contexts, in which the meaning-making of lyrics and their interpretation happens in a more personalized way and according to individual interests. Nonetheless, it appears that songs can, along with other mediums, play a supportive role on the way to the edge of chaos in the FLA process.

In brief, many FLA theories have proven to serve as a basis and hence also as a justification for the use of music and songs in the FLA process. Particularly promising ties can be detected with Krashen's affective filters, Atkinson's sociocognitive approach, as well as the edge of chaos theory, which appears to unite a great number of prevalent views in the field of FLA.

3.1.2 Evidence from language learning histories

Having established relations between FLA theories and the medium of music and songs, it shall prove interesting to see whether the examination of some language learning histories also reflects the success of these proposed connections.

In general, language learning histories (LLH) are narratives of foreign language learners who report on their personal history of and experiences in learning a foreign language. This research tools has only recently gained popularity among FLA researchers as well as teachers. The study of LLHs principally offers insights and leads to a better understanding of the FLA process. In this respect, they consequently also provide evidence for diverse FLA theories. (cf. Deacon et al. 2006: 1f.; Menezes 2008: 201; 2009: 16) Vera Menezes is one of the few FLA researchers who have engaged themselves in the study of LLHs and in the course of her research work a large corpus of LLHs, called AMFALE, has developed since 2003. She has collected a remarkable number of narratives from language learners of six different foreign languages hailing from diverse nations[15]. In her works of 2008 and 2009, she attempts to analyze and link LLHs to FLA theories and has been successful in detecting almost every popular FLA theory in these narratives. These findings further support her belief in the chaos and complexity theory in FLA.

[15] Menezes provides, apart from her own corpus, also collections of LLHs by teachers and other researchers on her webpage (cf. www.veramenezes.com/amfale/narrativas.html).

Having reviewed some of her LLH samples, a number of references to the use of song and music could be found, again relating to diverse FLA theories. For instance, in the following LLH of a Brazilian English as a foreign language (EFL) learner beneficial aspects in the FLA process are repetition as well as memorization, both elements of behaviorism. The medium through which this is learned is music and songs:

> [H]e [my father] was always bringing me back tapes from the American MTV, which I watched one right after the other every day. I ended up memorizing most of them and I repeated the lines […]. My mother thought I was going crazy, but that trained my ears and improved my fluency. (Menezes 2009: 17)

Another Brazilian EFL learner reports on a rather incidental learning process, again in an out of school context:

> I am still learning English, from the books I read, from the music I listen to, from the movies and TV series I watch […] and from all the unconscious (more than conscious) input I receive.

This LLH additionally hints that the importance of input might be a link to Krashen's input hypothesis. The fact that learning happens rather unconsciously could be related to Krashen's learning/acquisition dichotomy, being an indication of the latter. Apart from that, it highlights a sociocultural aspect, given that learning takes place through social and cultural mediums. Probably, the learner also alludes to the richness of input considered a determining factor for FLA in the edge of chaos theory.

The following LLH, again from a Brazilian student, clearly emphasizes the richness and intensity of target language exposure in a social setting as well as a meaning-making process, in this case even through the use of music - all in all, factors prominently represented in the edge of chaos theory:

> There were classes with 8 students, and 5 days a week, 3 hours a day. We used to talk English all the time, even outside the class. […] The professor was a kind of mediator, correcting mistakes and making conversation go on. We used to watch videos with native speakers to learn accent and cultural environment, and every Friday we used to listen to music, fulfilling [sic] gaps, trying to understand the meanings by the context. (Menezes 2008: 23)

Many more LLHs identify music and songs as the starting point of language learning and regard the wish to understand the lyrics as the initial motives for engaging with a foreign language (cf. Menezes online corpus). In some cases the inclusion of music and songs in the foreign language classroom led to similar positive and interest-sparking effects as can be seen in this LLH from a Japanese EFL learner:

> I started learning English when I was 7 years old. […] We played games using English, and sang English songs. I really enjoyed that. I was attracted to a new language and enjoyed speaking English without worrying about grammar. (Chuo University online)

Nonetheless, an analysis of Menezes LLHs gives the impression that the engagement with songs and music most commonly takes place outside the regular language classroom as demonstrated by the following excerpt of a LLH by a Brazilian:

> I just could improve my English, mainly my oral skills, by studying on my own, through songs, movies and cartoons. (Menezes 2008: 25)

Menezes (2008: 25f.) even goes as far as to claim that most factors leading to the preferred edge of chaos are not present in a school context, but still involved in the learning process through self-organization among foreign language learners. The extent of the success of out-of-school context learning through pop songs has been illustrated in a recent study by Schwarz (2012: 134), investigating incidental vocabulary acquisition through pop songs outside school. The findings led her to the conclusion that not only passive vocabulary is acquired this way, but participants who listen to and engage with English pop songs are also able to provide translations or synonyms even though they have never learned the respective words at school. To consider the power of incidental learning outside school as well as to equip foreign language learners with the appropriate tools to enhance this form of learning is an appeal directed at foreign language teachers that has been reiterated by Schwarz (2012: 137) several times. On the other hand, Murphey (1990b: 225) suggests promoting autonomous learning in the school context by handing over the responsibility for the choice of music and song materials as well as for the way of utilization to the foreign language learners.

Be it as a motivational trigger, as a well-integrated teaching method or as a tool for engaging with the foreign language outside school, these LLHs have demonstrated that music and songs play an important role in the foreign language learners' linguistic development. Furthermore, the use of music and songs reflects a number of different principles of FLA theories and thus justifies the place of music and songs in the FLA process. When turning now briefly to the foreign language learner in Austria, it can be said that the first learning experiences take place at primary school level (cf. Dalton-Puffer et al. 2011: 183), while the intense learning part only starts at the average age of 10 when entering secondary level 1. At this stage of their learning career, the learners live through a very

imprinting phase of their lives, which, along with the role that music plays in it, shall be the topic of the following chapter.

3.2 Music in adolescence

The LLHs in the previous section have to some extent reflected a very positive relation to music among adolescents in their foreign language learning experiences. Clearly, this does not preclude that music is relevant to all adolescents. However, drawing on experience and these observations, it still seems as if music plays a fundamental role in the life of many adolescents. This subchapter therefore sets out to examine adolescent media use with a particular focus on music in the first part and to fathom the reasons for the value and influence of music in adolescence in the second part.

3.2.1 Media use among Austrian adolescents

On the use of media among European adolescents a considerable number of studies exists (cf. Behrens and Ratgeb 2011; Berns et al. 2007; Grau 2009; Summer 2010; Willemse et al. 2010). Given that the present study is carried out in Austria, only research findings gained in Austria will be focused on. Moreover, research findings from different European countries do not differ largely anyway.

The Austrian public service broadcasting ORF has published two studies on media possession and use by adolescents in Austria in 2005 and 2008. Among the 14-24-year-old participants, 52% believe music to be a key area of life for them and another additional 34% considered it to be at least rather important (cf. ORF 2005: 4). Accordingly, 98% of the 12-19-year-olds possess a CD-player, 79% own an mp3-player and 69% a hi-fi system (cf. ORF 2008: 2). Taking into consideration the time spent on the diverse mediums, 12-19-year-olds watch television 85 minutes per day, which is exceeded by 104 minutes of daily listening to the radio (cf. ORF 2005: 5, 9). When asking 14-24-year-old Austrians for their most frequent leisure time activities, music is ranked highest with 53% in total and 56% among female participants. Compared to music, working at the computer takes the third place with 47% and television only takes the fourth place with 39%. Interestingly, playing an instrument is listed by 11% and ranked in 10th place. (cf. ORF 2005: 6). In addition, the topics 12-19-year-

old Austrian adolescents are most interested in are cinema/movies with 48% and rock and pop music with 47% followed by the internet with only 39% (cf. ORF 2005: 7). Similar results were yielded in a study by Pfarrhofer (2011: 8) conducted in Upper Austria, which is also the area where data for the present study was gathered. Again, 52% of the 11-18-year-old participants stated that listening to music is an area in their lives in which they are very interested, followed by the internet 46% are interested in, while only 29% show interest for cinema/movies. In this study, even 20% of the participants are also very interested in playing an instrument themselves. Taken together, all these figures provide evidence for an intense contact with music on a daily basis.

The study by ORF (2005) has already shown the high interest of adolescents in pop and rock music, which could be confirmed in a more detailed study by Heinzelmaier (2011: 11), who asked 1008 11-19 year-old Austrians for their preferred music genre. The results revealed that 47% of the participants favored pop music, followed by 36% who prefer rock and 30% in favor of house music. In this sense, pop music seems to be the music genre to which adolescents are mainly drawn.

A study carried out by Grimm (2003: 3) in Germany among 546 11-19-year-old pupils, demonstrated that television was watched for longer per day compared to listening to the radio. When asking the adolescents for their preferred program or genre on television striking results were revealed since music programs were rated highest (cf. Grimm 2003: 10). This shows that although watching television is seemingly the favorite media choice of adolescents, the probability that they listen to music anyway is reasonably high.

In brief, it can be concluded that music plays a very important role in the life of an adolescent, which is clearly reflected in studies on media use, and by and large highlights a stronger preference for music/radio than for television and internet/computer and also posits the genre of pop music as the most appealing to adolescents.

3.2.2 The pop song and its characteristics

In view of the elevated interest of Austrian adolescents in pop music, it appears crucial to briefly define pop music as well as to examine the characteristics of pop songs in greater detail.

Defining pop music is surprisingly difficult and appears to be a complex task, which can basically be attributed to the fact that numerous definitions exist. In order not to go beyond the scope of this thesis, only the key features are presented and a working definition will be established. Frequently, pop music is defined as a music genre that is clearly distinguishable from classical and rock music. On the other hand, it simultaneously appears to consist of many different styles and develops out of already existing musical traditions. Most importantly, pop music is characterized by commercialization, mass production, and distribution, usually reaching a high number of listeners. (cf. Frith 2001: 95; Starr and Waterman 2003: 2; Strinati 2004: 215) Today, pop music's most common connotation is that with "youth, change, and modernity" (Middleton et al. n.d.: section 1). In this respect, this thesis refers to pop music as a mass medium. Pop music is therefore equated with music present in the charts and it is also assumed that its mass audience are adolescents[16].

Turning now to the characteristics of pop music and thus of pop songs in particular, it seems that, unfortunately, only a very limited number of analyses of pop songs in terms of register and content have been published so far. Besides, the ever-changing nature of pop songs partly also due to societal changes reflected in lyrics (Dukes et al. 2003: 643) needs to be considered as a further complicating factor and threat as regards analyses and their up-to-date nature. Summarizing the few content analyses of pop songs from the 1950s up to today, North and Hargreaves (2008: 156) categorized the following three prevalent themes: "the portrayal of women and sexuality, racial issues, [and] the portrayal of destruction and violence". A rather recent large-scale study by Dukes et al. (2003: 644f.) analyzed 100 pop songs chosen from the top 40 US charts between 1958 and 1998 and revealed that a large majority, 81 songs from the entire sample, dealt with the theme of love in general, although sub-categories for sex and hurt were established and thus showed a more diversified picture of how love is portrayed in pop songs. Another content analysis conducted by Murphey (1989: 186) provides further evidence for this claim by showing that 40 out of 50 pop songs analyzed thematically clearly addressed love. Similar results were also found for songs from the 1960s by Cole (1971: 389).

As already asserted, pop song content analyses are rare, but the situation is even worse as regards analyses of register and discourse used in pop songs. To the best of my knowledge, the only relevant study available is from the 1980s, in which Murphey (1989:

[16] This working definition resembles partly the one chosen by Schwarz (2012: 54).

186) analyzed the top 50 pop songs of the year 1987. In order to carry out a register analysis, Murphey compiled a corpus of the respective lyrics and conducted a number of analyses such as a word count, content and role analyses, as well as a description of discourse features. As regards the words and word frequency count, a pop song consists on average of 263 tokens with every word being repeated three times. The mean speed of words per minute is 75.49, which is approximately half the speed of speech. This reduced pace is not only due to the slower enunciation of words, but more likely due to the greater number of pauses in between. Furthermore, the words as well as the sentences are typically short. Beyond that, 25% of the sentences in the corpus were identified as imperatives and questions. Interestingly, a quarter of the corpus comprises only ten words. Among them the pronouns *you*, *I*, *me*, and *my* as well as the function words t*he*, *to*, *a*, *and*, the future marker *gonna*, and the verb and noun *love*. Hence, a high frequency in the occurrence of unspecified personal pronouns was reported and a closer analysis revealed that the percentage of songs including *you*-referents amounts to 86%. Even higher figures were found for the referent *I*, which occurred in 94% of the songs analyzed. Additionally to personal references, also time, gender, and place references were examined. Results showed that 94% of all songs did not make reference to time, 80% did not contain reference to places, and 62% of the songs had no gender indication or reference. Those references made were classified as being only vague indications of place or time. (cf. Murphey 1989: 186f.; 1992a: 771f.) This vagueness present in the pop song discourse is termed “ghost discourse” (cf. Murphey 1992a: 771). Regarding the occurrence of verbs, Murphey and Alber (1985: 794) detected in an earlier small-scale study that 20% of all words were verbs, which according to them can be regarded as a high verb density.

On the basis of these findings, Murphey (1989: 189; 1992a: 773) subsequently tried to typify the discourse of pop songs. For this purpose, he consulted Bronckart’s (1985) interactive typology approach for the classification of texts by investigating “extra-linguistic parameters, linguistic operations, and textual surface markers” (cf. Murphey 1989: 189). In a first analysis of the extra-linguistic parameters, it appeared as if pop songs could be classified as narration because of their literary nature. However, further language analyses revealed insights that rather alluded to typify pop songs as situational discourse. In order to understand these relations, Bronckart’s (1985: 63) definition of situational discourse (SD) might be helpful:

> [T]ext produced in direct relation with the context, in particular with identifiable interlocutors, with a precise moment and place of production, and which is organized by constant reference to this context; in its extreme form, SD is a dialogue about the states and events in the context of exchange. (translated by Murphey 1989: 189)

At first glance, not all of the characteristics addressed are represented in the pop song discourse, but Murphey (1989: 189) provides a remarkable interpretation. Although Murphey (1989: 190) admits that time and place markers are typically absent and nebulous in the pop song discourse, he proposes that they are nevertheless existent for the singer and even more critically for the listeners. He believes that this absence in particular allows the listeners to involve their respective environment in the meaning-making and contextualization of the pop song lyrics. In this context, the "constant reference" should be regarded as the sound that constantly refers to itself and to the entire environment that is involved. In the search for "identifiable interlocutors", Murphey provides a similar interpretation and argues that the world of the listeners is the clue. The high frequency of unspecified personal referents, i.e., *I* and *you*, permits the listener to identify with the *I* and to project "present, remembered, idealized or desired affective relationships" (Murphey 1989: 190) onto the pop song lyrics with a person from the listeners' world, i.e. the *you*. Simultaneously, a process of meaning-making as well as a very personal contextualization is initiated by psycholinguistic processes (Murphey 1989: 191). When relating pop song discourse to the extreme characteristic of SD, i.e., representing a dialogue, two aspects need to be considered. Firstly, as reported by Murphey (1992a: 772), a quarter of the sentences in pop songs show high conversational nature due to the fact that they are either imperatives or questions. Secondly, the frequent pauses in the songs seem to encourage the listener to react or even answer on the one hand and on the other hand they additionally, by giving the listener time, enable him or her to associate the vague references with referents of all types in their environment (cf. Murphey 1992a: 772). In this respect, not typifying the pop song discourse as narration, but rather as situational discourse can further be justified by arguing that pop songs usually are not narration of exact past time events, but more likely render the listener in a situation taking place at the very moment of listening and provided that attention is indeed given to the text songs permit the listeners to "make them the personal soundtracks of [our] [their] lives" (Murphey 1989: 192).

3.2.3 Why music attracts adolescents

One of the main reasons why adolescents are drawn very strongly to the medium of music appears to be associated with the developmental phase they are going through. Music is generally believed to serve people especially in phases of their lives where they undergo changes on an individual level as well as shifts as regards their social roles (cf. Cross 2012: 319). Undoubtedly, adolescence represents such a phase of transitions in multiple ways.

Apart from physiological transitions, adolescents also experience emotional and social developments very clearly reflected in the change of their orientation away from the family and towards their friends and peer group (cf. Kleinen 2008: 44; Larson et al. 1989: 583). The specific use of music to help adolescents live through these changes is also reflected in their media choices. A number of studies (cf. e.g., Kirsh 2006: 181; Larson et al. 1989: 582; Rosengren 1994: 63) have pinpointed a shift from the more family-related medium of television towards the medium of music and in particular pop music, which is more closely related to the peer group. Besides, the studies by ORF (2005) and Pfarrhofer (2011) also substantiate the claim that the medium of music/radio is preferred to that of television and internet/computer. The adolescent's stronger orientation towards the peer group moreover causes a change in musical preferences. On the subject of music taste, the peer group has a major influence and thus adolescents begin to dissociate themselves from their parents and their parents' musical preferences. These shifts can be seen as attempts to form and develop their individual and also independent identity. (cf. Frith 2004: 38; Hargreaves et al. 2006: 147; Kleinen 2008: 46; Lemish 1998: 146; Münch 2008: 271) As music taste is influenced by the peer group, music taste in turn also influences the membership in a certain peer group. This phenomenon can be observed rather frequently at schools, where music tastes strongly influence the development of cliques and have an impact on memberships (cf. Hargreaves et al. 2006: 149; Harris 2009: 173)[17]. Apart from the crucial role musical tastes and preferences play in the development of identity, the appearance of musicians can have an impact on identity formation as well (cf. Raviv et al. 1996: 646). Without going into detail at this point, it can be inferred that music plays a crucial role in adolescence by helping the adolescent to live through a turbulent and unstable phase in life,

[17] Furthermore, a number of interesting studies have engaged with the musical taste of adolescents as well as their preference for so-called problem music genres (e.g. heavy metal, rap) and what this reveals about their personality, behavior, and developmental issues (Arnett 1991; Fried 2003; Lacourse et al. 2001; Mulder 2007; Schwartz and Fouts 2003).

facilitating the dissociation from parents and other authorities and thus by enabling the adolescent to discover and shape their individual identity and connect with a like-minded peer group.

Apart from aiding adolescents in their search for their identity, music is even more frequently related to emotional uses such as the regulation of mood, also known as mood management, the enhancement of "emotional states" (cf. Wells and Hakanen 1997: 227), and the expression of emotions (cf. Frith 2004: 39; Knobloch 2006: 240; North and Hargreaves 2008: 89; Roberts and Christenson 2001: 399; Schramm and Kopiez 2008: 256; Sloboda 2005: 204; Wells and Hakanen 1997: 227). In detail, the emotional use of music allows the listener to escape a current situation and/or boredom (cf. Frith 2004: 40; Sloboda 2010: 508), have the feeling that time stands still, which allows him or her to live in the very moment (cf. Frith 2004: 40), give shape to memories by enhancing their meaning (cf. Frith 2004: 40; Sloboda 2010: 508), evoke and access emotions (cf. Johnson-Laird and Oatley 2008: 108; Schramm and Kopiez 2008: 256f.; Sloboda 2005: 204), express emotions without humiliation (cf. Frith 2004: 39; Schramm and Kopiez 2008: 258), enforce certain feelings and emotions (cf. Roberts and Christenson 2001: 399), change mood (cf. Sloboda 2005: 204), relax (cf. Schramm and Kopiez 2008: 256), increase motivation and focus attention, and to work more efficiently (cf. Sloboda 2010: 508f.). According to Roberts and Christenson (2001: 399) these functions of music are the primary reason and the motivational force for its use among adolescents. With the aim of gaining insight into some of these uses, a study was conducted among 129 10-14-year-old pupils in Lower Austria (cf. Höfler 2009: 17f.). The qualitative part revealed that the majority of participants listen to music in order to relax, fight boredom, feel happy, and also to express feelings or moods. In a further step, it could be shown that, when asking the same sample group whether they used music to change, enforce, and/or express their mood, changing mood was rated highest, followed by enforcement and expression. Interestingly, the use of these functions of music increased with age and female participants used mood management through music more often than their male counterparts. (cf. Höfler 2009: 33f.)

Further suggestions on the underlying reasons for the popularity of pop music in adolescence are brought forth by Murphey (1985: 794; 1989: 190f.), who has identified a link to the psychological concept of inner speech as well as a link to a phenomenon in first language acquisition. The concept of inner speech was originally introduced by Vygotsky

(1934), a researcher in the field of developmental and child psychology, and developed from the concept of egocentric speech by Piaget (1923). In Vygotsky's view egocentric speech is speech directed at oneself although at an early age it fulfills a communicative and social purpose. The older the child gets, the less it uses this speech to communicate, but rather turns it into thoughts only present in the mind. This form of speech is seen as an indicator from which can be drawn inferences about how words are used to think. Based on analyses of egocentric speech, three major characteristics of inner speech could be inferred: its high verb density; its focus on sense rather than on meaning; and its silent nature. (cf. Murphey 1989: 190)

Murphey (1989: 190) relates these characteristics to his pop song register analyses, which consequently revealed considerable similarities. The high proportion of verbs in pop song discourse especially indicates some resemblance. Vygotsky defines meaning as an interpretation that is associated with a certain context, whereas sense is defined more loosely and pools all kinds of connections and interpretations. Sense-making therefore is what each listener does when interpreting a pop song. (cf. Murphey 1989: 191) Furthermore, Murphey (1989: 191) identifies the vagueness of defining persons, places, and time in pop songs as a close structural similarity to inner speech, which does not need precise referents because they are known to the speaker anyway. Clearly, inner speech cannot be equated with pop song discourse due to the pop songs' fixed language and the fact that it is generally not a medium of silence and an awareness of these discrepancies can also be observed in Murphey's works. Nevertheless, Murphey argues that the rationale for the pop song's attraction in adolescence can be partly found in its close resemblance to inner speech. Singing pop songs might cater to the longing for egocentric speech when it has already left adolescents and allows them to take pleasure in hearing themselves. (cf. Murphey 1989: 191; 1992b: 7) In this sense, the mental repetition of songs could also stem from this need for egocentric speech and thus might represent another reason for the occurrence of INMI as discussed in chapter 2.3.2. The high frequency of personal pronouns in pop songs seems especially significant in adolescence since they strengthen the adolescent listener "at a time when the child's egocentricity is threatened by adolescent world-awareness and adult stress" (Murphey and Alber 1985: 795).

Murphey's second link between adolescence, pop songs, and language acquisition requires a brief excursus on a phenomenon present in first language acquisition. As already

addressed in chapter 2, the first aspects of language children and even the unborn learn are the musical features of language (cf. Brandt et al. 2012: 1; Fonseca Mora 2000: 149; Thompson and Andrews 2000: 181f.). Already before and logically after a child is born, its parents, siblings, and other caretakers start communicating with him or her and do so in a certain type of speech, which is evidently distinguishable from normal adult speech. The linguistic term for this form of language is motherese and chiefly refers to the alteration of prosody and voice when talking to young children. In detail, motherese is mainly characterized by a "higher vocal register", "restricted range of intonation contours", "very exaggerated modulations and variations of pitch", "long, soft melodic forms", "prosodic rhythmicity amplified by the frequency of repetition" (de Boysson-Bardies 1999: 82; cf. also Burnham et al. 2002: 1), "vowel hyperarticulation", and "high affect" (Burnham et al. 2002: 1). The sing-song language of motherese matches perfectly the young child's abilities as regards attention and perception and therefore is commonly more successful in attracting the child's attention than normal speech (cf. Bencivelli 2011: 92; de Boysson-Bardies 1999: 82). Numerous studies (cf. e.g., Dunst et al. 2012: 1; Fernald 1985: 181) have also shown that young children have a stronger preference for motherese and this can be found up to preschool age.

Murphey's pop song register analyses affirm a connection between the pop song register and the register of motherese (cf. Murphey and Alber 1985: 794). In particular, the emotional and affective nature, the repetitive elements, and the elevated pitch are features found in both motherese and pop songs. Moreover, the purpose of both is communication rather than language learning. However, these are not the only reasons that lead Murphey to draw connections. By the age of adolescence, the amount of motherese a child receives has diminished drastically. In Murphey's (1992b: 7) view, adolescents still feel the desire to receive affectionate speech, which is however usually not yet compensated by a lover or partner. For this reason, adolescents try to supply this want with listening to music and in particular to pop songs. According to Murphey, this behavior partly accounts for the fascination with and attraction of pop music in adolescence and he therefore refers to pop songs as "motherese of adolescence" (Murphey and Alber 1985: 794; cf. Murphey 1992b: 7)

In other words, the strong preference of adolescents for music is due to the developmental phase of adolescence, in which music helps them to define and shape their identity and find friends. Additionally, the emotional functions of music especially as regards

mood management and the handling of emotional states contribute to its popularity. Moreover, the continuing existence of the desire to express egocentric speech and to receive affectionate and emotional talk might be supplied by the specific nature of pop song discourse and thus represents another motivation for singing and listening to music. These four reasons apparently constitute the major motives for the prominent use and interest in music and pop music in particular, the evidence for which could be provided in a number of studies on adolescent media use and exposure. It could furthermore be shown that adolescent foreign language learners seem to enjoy including songs in their foreign language learning processes with considerable success. On the basis of numerous FLA theories and in particular of Krashen's hypotheses, Atkinson's sociocognitive approach and the edge of chaos theory with its wide scope, a substantially justified basis for the incorporation of songs and music in the FLA process could be established.

4. MUSIC AND SONGS IN FOREIGN LANGUAGE TEACHING

Already more than two thousand years ago Plato declared that "music is a more potent instrument than any other for education" (Lake 2002) and he might have been right in asserting so. In this light, this chapter sets out to evaluate the triangular relationship between music, foreign language acquisition, and foreign language teaching. First of all some pedagogical aspects in relation to the use of music and songs in FLL are considered. The second half of the chapter attempts to present the wide scope of the application of music in the foreign language classroom. It shall be seen that music and songs allow focusing on a broad field of areas in FLL in a variety of possible ways and that their use is also justifiable from a pedagogical perspective.

4.1 Pedagogical reasons for the use of music

At the focus of this subchapter are the questions of how learning and in particular FLL can be made successful for the individual leaner and whether and in which ways music and songs can represent a crucial and aiding factor in successful learning from a pedagogical angle. In this regard issues such as authenticity, motivation, the theory of multiple intelligences as well as other beneficial aspects are discussed. This subchapter concludes by presenting some

concerns expressed by teachers on the integration of songs and music in the foreign language classroom.

4.1.1 The theory of multiple intelligences

For a very long time a rather fixed understanding of intelligence has guided the basic conceptualizations in education. This understanding of intelligence can be equated with the intelligence quotient (IQ). IQ testing, however, is a testing method that focuses exclusively on "cognitive abilities, reasoning, and problem solving capacities", whereas "social and personal" aspects are entirely neglected (Sağlam et al. 2010: 12). This prevailing understanding of intelligence thus led to a rather narrow focus on cognitive abilities in teaching, namely on logical-mathematical and verbal-linguistic abilities (cf. Arnold and Fonseca Mora 2004: 121; Fonseca Mora 2000: 146; Rogers 1975: 40; Sposet 2008: 6). In addition to this concept of intelligence, treating students in teaching and learning situations as if they all were alike was common practice in the education system. Fortunately, research in the workings of the brain as well as in learning styles in the past few decades has resulted in a changing understanding of cognitive ability, hence of the conception of intelligence in general. (cf. Arnold and Fonseca Mora 2004: 120)

With regard to this paradigm shift, Howard Gardner's theory of multiple intelligences represents a remarkable contribution. Gardner's research findings revealed that cognitive ability can no longer be seen as singular, but rather as a pluralist ability (cf. Gardner 1991: 13). With his multiple intelligence theory he created a "learner-based philosophy" (Richards and Rodgers 2001: 123) in which he promotes his belief in the existence of nine different intelligences[18]: the verbal-linguistic, musical-rhythmic, mathematical-logical, visual-spatial, bodily-kinesthetic, interpersonal, intrapersonal, naturalist, and the existential intelligence (cf. Gardner 1983; 1999). Gardner (2004: xv) is convinced that every human being is born with all these nine intelligences, which are independent of each other. At the same time this set of intelligences develops in every individual depending on his or her genetics and experiences. Consequently, this makes every individual's intelligence profile unique (cf. Gardner 2004: xv-xvii). In addition, Gardner's frames of mind imply that humans can advance their intelligence. Williams and Burden (1997: 20) therefore argue that "schools can (and

[18] Initially Gardner's theory (1983) was based on the existence of seven intelligences; however, he expanded the number later (1999).

should) play a part in this". Concerning this matter, Gardner (1991: 13; 2004: 385) postulates that education needs to adapt to the abilities and intelligences of the individual student in order to allow students to increase their progress when being given the chance to use their personal strengths in understanding and learning. In this respect, Gardner (2004: 385) advises in particular teachers to provide children and students with a variety of tasks and activities, which cater to the needs of many different intelligences.

Regarding the link between multiple intelligence theory (MIT) and language teaching, Arnold and Fonseca Mora (2004: 126) emphasize that

> [t]he MIT instructional perspective proposes that language learning, that is to say, developing learners' verbal linguistic intelligence in a foreign/second language, can be favored by using a variety of learning tasks which call upon diverse intelligences.

It thus becomes clear that not only can the development of the verbal-linguistic ability enhance FLL, but giving students the possibility to enhance it in their preferred way, i.e., through their preferred intelligence, is the more appropriate way to approach language teaching with the MIT in mind. How other intelligences can help the development of the verbal-linguistic intelligence can be seen in the following examples. For instance, the visual-spatial intelligence helps learners in FLL to connect words with pictures, which might facilitate the recall of new words. The logical-mathematical intelligence is addressed best by allowing learners to find solutions to problems and to detect structures, which helps them to become aware language structures. Through problem-solving activities logical-mathematical learners are involved in a potentially pleasant activity through which they implicitly familiarize with new words and language structures[19]. In practice, addressing different intelligences in the foreign language classroom provides teachers and learners with many different frames and learning situations and beyond that allows learners to approach language learning through their favored intelligence (cf. Arnold and Fonseca Mora 2004: 125f.).

Music in general "does relate in a variety of ways to the range of human […] intellectual competences" (Gardner 2004: 123). Taking into account the musical ability, Arnold and Fonseca Mora (2004: 126) claim it to be connected with the ability of valuing and identifying "rhythm, pitch and melody" which plays a central role in language ability. Thus,

[19] For a more detailed account of the supportive nature of the different intelligences in teaching languages, see Arnold and Fonseca Mora (2004: 126ff.)

learners who are good at recognizing such features might benefit most from instruction that incorporates musical elements (Sağlam et al. 2010: 13).

4.1.2 The issue of authenticity

Throughout the previous chapter, the concept of meaning and meaning-making has been addressed several times, but how meaning and meaning-making can be understood has never been commented on. Beyond that the concept is generally not explicit. Remaining in the context of FLL, Widdowson (1998: 711) offers two perspectives on the meaning of meaning. Basically, he claims that earlier structuralist approaches to language teaching also focused on meaning, but on a different type of meaning than today's CLT. In fact, structural language teaching concentrated on the meaning of the language form itself, which can be equated with semantic meaning. Semantic meaning is thus the meaning that is represented in the "concepts and principles of the language itself" (Widdowson 1998: 707). Clearly, semantic meaning stands in sharp contrast to the meaning the producer of an utterance wants to convey. This form of meaning is the second perspective Widdowson offers, which he explains as pragmatic meaning. As already indicated, pragmatic meaning is the meaning that has become more and more prominent in language teaching since the advent of CLT in the 1970s and 1980s (cf. Widdowson 1998: 711). Pragmatic meaning-making is different from semantic meaning-making as it can only occur when the recipient is able to localize what has been said. In this respect, pragmatic meaning is dependent on inferences that can be made from the context and reality in which the language has been produced originally (cf. Widdowson 1998: 711). The problematic aspect of pragmatic meaning, as Widdowson (1998: 711) aptly notes, is that "reality does not travel with the text". To be precise, pragmatic meaning-making only becomes problematic when transferring it into the FLL context. Language teaching that tries to focus on pragmatic meaning-making is often strongly associated with authenticity and authentic language input. On this account, a discussion of the notion of authenticity is vitally important.

Breen (1985: 61) describes the concept of authenticity as relative and outlines four aspects that require consideration. These are the authenticity of the input, the authenticity of the learners' interpretation of the input, the authenticity of the purpose of the input and tasks, and the authenticity of the social situation. Through this account, the

multifacetedness of the concept of authenticity becomes immediately comprehensible. In another attempt to define authenticity, Gilmore (2007: 98) adds more aspects and proposes to further include the authenticity of the assessment, of the (target) culture, and of the teacher-student communication. Regarding the nature of authentic language, he considers not only a native speaker's language production as authentic, but also text produced by "a real speaker/writer for a real audience" (Gilmore 2007: 98). While the first association with authenticity and authentic material is often the authenticity of the stimulus/input, a number of aspects might make a learning situation authentic for the language learner. Nevertheless, it seems as if Widdowson (1998: 711) cannot yet fully agree on the integration of authenticity in the foreign language classroom. He believes that the inclusion of authentic language in the foreign language classroom is impossible by reminding that:

> the classroom cannot provide the contextual conditions for it [the language] to be authenticated by the learners. (Widdowson 1998: 711)

It becomes clear that without associating the language with a context, pragmatic meaning-making remains unattainable. Since the foreign language learner is not usually part of the community in which the language was produced and not a participant in the situation in which it was uttered, the only context that remains available is the language classroom. For this reason, in order to make language authentic, FLL and teaching is stipulated to take into consideration the learners' reality when providing contextual circumstances that consequently allow them an authentication of the discourse as their own. (cf. Widdowson 1998: 712) In this sense, authenticity is possible when FLL and teaching focuses on semantic as well as pragmatic meaning. In order to meet these requirements, Widdowson (1998: 713) suggests working with language that triggers a context in the learners' reality and brains, which in other words could also be referred to as triggering their imagination.

Having reached this point in argumentation, a clear link can be established between Widdowson's notion of authenticity and Murphey's (1989) notion of pop song discourse. As it is quite rightly concluded by many scholars that "meaning apparently does not simply exist, it is created by the receiver" (cf. Murphey 1989: 190), it becomes obvious that pop song discourse in particular lends itself most appropriately to authenticating language in a highly personalized context. The contextualization and thus authentication accrues from the search for personal referents, i.e., especially for the personal pronouns, directly in the learners' reality and imagination. Through this, the reality that does not travel with the text

is added by the learner him- or herself. The foreign language learners are thus enabled to relate to the pragmatic meaning in a very personalized way, as well as decode linguistically encoded meaning in the lyrics in order to make both pragmatic and semantic meaning from pop song discourse. When reading Widdowson's (1998: 714) plea for the appropriate design of authentic tasks, it appears that it can be quite appropriately applied to pop songs:

> Their [tasks] design must take account of the interests, attitudes, and dispositions of the learners, but these will relate to their own familiar cultural contexts and concerns, not those of the unfamiliar foreign community whose language they are learning but whose reality they are in no position to relate to.

4.1.3 The motivational aspect in learning

In general, a fundamental aspect in successful learning is motivation (cf. Arnold and Fonseca Mora 2004: 122; Sağlam et al. 2010: 26). The learner's motivation therefore also has a considerable impact on FLA along with other influential learner characteristics such as attitude, aptitude, intelligence, personality, and preferences as already discussed in chapter 3.1.1. This subchapter, however, tries to approach the motivational aspect in learning and FLL from a more pedagogically influenced position.

Principally, educational psychology distinguishes between two major types of motivation, namely extrinsic and intrinsic motivation. Extrinsic motivation is applicable to activities that are carried out for the sake of achieving a certain outcome, whereas intrinsic motivation pertains when activities are carried out because of an "inherent interest" and satisfaction or because of their mere enjoyment (Ryan and Deci 2000: 55ff.). Even though intrinsic motivation is recurrently perceived as the superior type of motivation, the combination of both may lead to increased success in a learning situation (cf. Hidi and Harackiewicz 2000: 159). When examining intrinsic motivation in greater detail, Schumann (1999: 30) is convinced that it originates from a personal evaluation and the emotional reaction of how the stimulus one is exposed to is appraised. In a learning context, this means that the choice of stimuli might have the power to encourage or even hinder the learning process. The significance of the choice of stimuli allows for several connections to be made with already previously discussed issues. The first possible connection is to the MIT. Teaching that is oriented to the diverse needs and strengths of the learners will evoke a more positive appraisal and therefore leads to higher levels of motivation as well as enhanced learning situations (cf. Arnold and Fonseca Mora 2004: 123). Furthermore, it is

noteworthy that interest, which is referred to as emotion, is perceived as the major driving force in intrinsic motivation and therefore is required for activating and maintaining the essential intrinsic motivation for learning. Interest can be distinguished into individual or personal and situational interest, whereby the former seems more significant to intrinsic motivation and is understood as personal characteristic. Situational interest, on the other hand, is more related to extrinsic motivation and created by "external stimuli" (cf. Bye et al. 2007: 145, Hidi and Harackiewicz 2000: 152; Vaino et al. 2012: 412). Two aspects are worth highlighting: firstly, the stimulus is again pinpointed as a decisive component that can trigger motivation. Secondly, as could be seen in chapter 3.2.1, adolescents are highly interested in pop songs, an interest which signifies that teaching oriented toward students' interests should also take this interest into consideration. In particular, pop songs might activate both personal and situational interest and thus should promote increased motivation among the students. It goes without saying that not every pop song is necessarily interesting to every adolescent learner and that some adolescents might prefer to keep school and private interests separate.

Successful learning is not only dependent on motivation, but as it is highlighted in constructivism meaning also seems to be a crucial and influencing factor (cf. Arnold and Fonseca Mora 2004: 124), as Williams and Burden (1997: 27f.) aptly explain:

> [E]ach person's individual construction of the world will depend upon their previous experiences, which will also influence how they anticipate what will happen in the future. […] Worthwhile learning does not entail the reception of ready-made facts, but must involve the building of new personal meaning and understanding.

In relation to this quote, Arnold and Fonseca Mora (2004: 124) add that context is crucial in order to build personal meaning. Only through the interaction between the context that is provided and stored with certain verbal information and the knowledge of the world of the learner that is activated by this context personal meaning-making is possible. This constructivist perspective on learning again allows for parallels to be drawn to the MIT. Working with various intelligences represents a vehicle for teachers to locate and address "areas of personal meaningfulness" for the individual students, which allows teachers not only to tap their learners' personal interests, but more generally enables them to position the learners "at the centre of the learning process" (Arnold and Fonseca Mora 2004: 124). As already discussed in the previous subchapter, authentic materials, a concept for which pop

songs can fulfill the requirements, make for personalized meaning-making as proposed by Williams and Burden (1997) and are moreover a motivating force (cf. Gilmore 2007: 106). This might be traced back to the fact that pop songs in particular address a field of interest of adolescents. Beyond that, motivation is furthermore believed to lower the learners' affective filters, which in turn facilitates and promotes language learning (cf. Krashen 1982: 32).

A concept in which all these notions are united is brought forward by Schumann (1997: 32), called "sustained deep learning" (SDL), which is again said to be influenced by stimulus appraisal. The term SDL refers to learning that requires rather long time and that leads to a learning outcome which shows a considerable amount of proficiency. Hence, the sort of learning called for in FLL. Most importantly, however, is the fact that sustained deep learning "is highly dependent on affect, emotion, and motivation" (Schumann 1997: 32).

Going a step further and investigating the possible benefits of the use of songs in the foreign language classroom against this background, it suggests itself that songs can be valuable tools as regards stimulus appraisal, motivation, and personal meaning-making. Evidence seems to come from various scholars confirming that music and songs have a very positive influence on the motivation of the students (cf. e.g., Cifuentes 2006: 51; Lems 2001: 3; Lacorte and Thurston-Griswold 2001: 7; Li and Brand 2009: 76; Murphey 1992b: 7; Schön et al. 2008: 975; Stansell 2005: 3; Yilmaz 2011: 93). For instance, Cifuentes (2006: 51), whose study focused on speaking skills and gathered data through surveys, interviews, recordings, and field notes, reported that the use of songs promoted increased "motivation, participation, cooperation, relaxation and self-confidence" in the learning context. According to her, the songs elicited more interested and enthusiastic attitudes in the participants (cf. Cifuentes 2006: 52). A different study by Li and Brand (2009: 73), which focused on vocabulary acquisition with the use of songs, also investigated learners' attitudes towards the music and non-music treatment. Results showed that the participants' attitudes as regards "motivation, enjoyment […] and confidence" were highest in the music treatment group (Li and Brand 2009: 78f.). Unfortunately, the investigation of the factor motivation appears to be only of secondary importance, as none of the studies focuses primarily on this issue. As regards the learners' attitudes towards songs as teaching tools, further benefits and evidence can be found in the studies on enjoyableness and effectiveness of different teaching materials by Jolly (1975) and Green (1993). Jolly (1975: 13) reported that more than

80% of the participants in his study on teaching materials and methods, perceived songs to be a "very useful" teaching tool. In the study carried out by Green (1993: 6), out of seventeen teaching tools, songs were rated the most enjoyable of all and in terms of effectiveness they achieved the seventh rank. These results indicate that the high enjoyableness of songs accounts for the positive appraisal they receive, which consequently makes them both highly motivational and effective teaching instruments.

4.1.4 General benefits

So far, music and songs have been found to work as an effective mnemonic aid for verbal information (chapter 2.3), to be viable and effective tools in the FLA process that are used and appreciated by the learners themselves as well (chapter 3.1), to address the interests of adolescents and represent a major and thus popular element in their personal free time activities (chapter 3.2), to be categorized as authentic materials, which allow for personalized meaning-making due to their vague discourse characteristics (chapter 4.1.1) and this in turn along with the possibility to address a greater number of intelligences in teaching contributes to an increased learner motivation (chapter 4.1.2 and 4.1.3). This chapter seeks to provide further beneficial aspects of the use of music and songs in the foreign language classroom that have not yet been addressed.

First of all, music and songs are an omnipresent element of today's life and are enjoyed and appreciated by students (cf. e.g., Murphey 1992b: 7; Schön et al. 2008: 976; Smith Salcedo 2010: 19; Stansell 2005: 3). Besides, music works on an emotional level (cf. e.g., Murphey 1992b: 8) and therefore helps to create a positive, relaxed, and enjoyable classroom atmosphere (cf. e.g., Anton 1990: 1166; Cifuentes 2006: 51; Fonseca Mora 2000: 151; Jolly 1975: 13; Lake 2002; Lems 2001: 1; Medina 2002: 1; Murphey 1992b: 8; Stansell 2005: 3). Music and songs in particular are often seen as tools to reduce language performance anxiety when they are used to replace longer readings especially at an early stage of language learning (cf. Smith Salcedo 2002: 120; 2010: 27). Additionally, they are also frequently appreciated as an entertaining alternative to traditional teaching material (cf. e.g., Abrate 1983: 8; Lacorte and Thurston-Griswold 2001: 7; Murphey 1992b: 7), which, it is

claimed, additionally requires little preparation[20] and is practical in its application (cf. e.g., Murphey 1992b: 8; Stansell 2005: 36). On the other hand, music embodies the capacity to attract the attention and interest of students (cf. e.g., Abrate 1983: 8; Adelman Reyes and Vallone 2008: 62; Cifuentes 2006: 51) and at the same time encourages and helps restless students to become quieter and calm down (cf. e.g., Adelman Reyes and Vallone 2008: 62; Fonseca Mora 2000: 151). Moreover, music and songs stimulate creativity and imagination in the students (cf. e.g., Adelman Reyes and Vallone 2008: 62; Fonseca Mora 2000: 151). Lastly, songs also allow students to gain insights and thus a deeper understanding of the culture of their target language (Abrate 1983: 8; Jolly 1975: 13; Lacorte and Thurston-Griswold 2001: 7; Lems 2001: 2; Stansell 2005: 34). As will be seen in the second section of this chapter, beyond what has been indicated so far, songs also lend themselves perfectly to the teaching of a wide range of language skills and other related aspects.

The previous overview seems to leave no doubt about the advantageous aspects and values of incorporating music and songs in the (foreign) language classroom. Still, a cautious note needs to be put forth at this point. As Murphey (1992b: 6) quite rightly states:

> [s]ongs […] will not teach anyone how to *use* language – no matter how great their memorability, how much fun it is to sing and listen to them, or how 'energizing' the change of pace might be. [author's emphasis]

Murphey's justified claim points to the fact that it is actually the teacher who is responsible for the development of the song's full potential in the foreign language class and beyond that he or she is also in charge of the fundamental decision whether to use it at all.

4.1.5 The language teacher's point of view

In this respect, a brief investigation of the foreign language teachers' attitudes towards the use of music and songs in their classrooms might yield interesting insights.

In the course of a workshop, Murphey (1992b: 8) was able to compile a catalog of problems connected with the incorporation of songs in the foreign language classroom as well as the concerns most widespread among Swiss EFL teachers, who participated in this

[20] Claiming that teaching with music and songs needs little preparation is rather questionable. The mere choice of appropriate songs for a teaching and learning context that are also customized to learners' needs, abilities, and teaching aims takes not only time, but also a lot of expertise and thought. This shall become apparent when reporting on the criteria for the song choice of this study.

workshop[21]. The three most frequently given answers were that they felt that music and songs were not appreciated and perceived as acknowledged teaching tools by school administration, colleagues, and pupils. A strong belief in songs' and music's inadequacy to suit the teaching aims promoted by the syllabus was held. Besides, teachers had the feeling that they were mostly wasting time when using songs. This claim ties in with the third component, namely that they experienced a lack of methodological guidelines on how to use songs suitably as well as an uncertainty about what the actual aim of teaching through songs should be. Almost twenty years later, Sağlam et al. (2010: 6) still identify similar problematic issues, most importantly the uncertainty about how meaningful situations and motivation can be created through the use of songs. Sağlam et al. (2010: 6) additionally report on a resulting "lack of enthusiasm and interest" at the teacher's side in applying songs in their classrooms.

What has been addressed by teachers and researchers needs to be taken seriously. Even though a ready-made manual about songs appropriate for language teaching does not exist, some advice can be offered at this point to teachers who feel uncertain and confused. First of all, it needs to be borne in mind that generally speaking "no material will answer all our different needs" (Murphey 1992b: 9). Nevertheless, in order to reveal the potential of songs teachers should base their decisions for songs on motivation and interest, but most importantly, also on appropriateness and teaching aims (cf. Sağlam et al. 2010: 6). In addition, Sağlam et al. (2010: 6) propose to consider what language forms, register of target language, and language skill should be taught as well as for what purpose. The researchers consider the use of songs valuable if it sparks interest, inspires pleasant tasks, connects existing knowledge with new, is not too complex, is an example of correct language usage, and encourages follow-up discussions. A variety of promising music-based activities is also provided by Murphey (1992b: 10), who in a cautionary remark recommends to be both, "schoolish", which implies carrying out activities that focus on a learning aim, and "natural", which implies performing activities that people do naturally when engaging with a song, in the approach of using songs in the foreign language classroom in order not to "kill" them.

In brief, if teaching shall enable students a SDL process, the three fundamental elements teaching needs to be based on should be affect, emotion, and motivation. As has been seen, addressing an array of different intelligences as well as personal interest in

[21] Unfortunately, Murphey (1992b) does not provide more details about the participants of this survey.

teaching promotes not only motivation, but also personal meaning-making and thus affect and emotion. The fact that songs can nurture these needs in a teaching situation is manifested in their motivational nature and the manifold beneficial effects they have on the foreign language classroom. Still, especially teachers still need to be provided with further material, guidelines, and most importantly workshops in order to secure the successful integration of music and songs in their classes.

4.2 The scope of the application of music and songs

The application of music and songs in the foreign language classroom is obviously largely dependent on the teacher. Not only his or her willingness is decisive, but also how skillful he or she is able to carry out this undertaking. Sağlam et al. (2010: 6) emphasize accurately that "songs make sense and have function only in the hands of teachers with well crafted plans". In this context, this subchapter shall provide an overview of the various teaching approaches focusing on the integration of music and songs. Apart from that, areas that benefit from music-based instruction will be highlighted and discussed. In the course of this chapter further evidence for the beneficial nature of songs will be provided and interested foreign language teachers are provided with ideas how to integrate music and songs in their teaching and which language aspects can benefit.

4.2.1 Musical methodologies

Interestingly, the use of music and song in language learning already dates back to as long ago as the Middle Ages. At that time students of Latin first had to acquire the "rhythm and flow" of the language, which had been achieved by a song called "Song School", and only then did they start the actual study of the language (Karimer 1984: 42). Since the Middle Ages many approaches to teaching language with the help of songs have been developed. Among these can also be found techniques experimenting with hypnosis and sleep as optimal learning conditions (cf. Ostrander and Schroeder 1980: 13). Today, however, five major approaches can be identified in the field of foreign language teaching that use music as an integrative and substantial tool. These are also referred to as musical methodologies for the language classroom.

In the 1970s Georgi Lozanov, coming from the field of psychiatry and education, was the first to develop such an entire methodology, which he called Suggestopedia. Generally, it can be described as a "holistic method" which is based on the belief that the learning capacity and thus the language learners' performance can be increased by creating a relaxed atmosphere (cf. e.g., Smith Salcedo 2002: 16f.; Sposet 2008: 9f.). For this purpose, Lozanov not only made use of "yoga, classical music, parapsychology, and autogenic training" (Bancroft 1978: 168), but also of a pleasing classroom design in order to enable students to reach the so-called "alpha state" (Bancroft 1978: 172; Morgan 2003: 9; Sağlam et al. 2010: 28). This state of the brain is usually perceived as the decisive requirement for an "unconscious absorption" of new information (Bancroft 1978: 172). Even though a considerably large part of the Lozanov language classroom builds on rather traditional methods of teaching[22], the so-called "concert sessions" (Lozanov and Gateva 1988: 223) represent the innovative element[23] (cf. Bancroft 1978: 170). These sequences are dedicated to "reinforcement, which ideally takes place subconsciously" (Bancroft 1978: 170). During this entire phase different pieces of baroque music are played in the background. The students usually take a yoga position and follow yoga breathing techniques while the teacher reads aloud the newly learned material in accordance with the rhythm of the music as well as with that of the breathing of the students (Bancroft 1978: 170f.). The efficiency of this musical methodology is reflected in various study results (cf. Beitinger et al. 1993; Gritton and Bordon 1976; Prichard and Taylor 1976a; 1976b). Bordon and Schuster (1976: 27), for example, found in their study on the recollection of Spanish vocabulary a 2.5 times improved learning performance through the use of suggestopedic methodology.

Later, in 1978, another musical methodology called Jazz Chant was discovered and developed by Carolyn Graham. Her approach focuses mainly on speaking and listening and thus on the acquisition of the "rhythms, stress and intonation pattern" of conversational American English (Zhang 2011: 564). Basically, jazz chants are jazz songs accompanied by a text, which often takes a "two-part dialogue form" (Graham 1978: x). Today, Carolyn Graham provides a large number of chants for all different kinds of purposes, language skills,

[22] Still, music in the form of songs is also part of the traditional teaching elements, which are only considered traditional in comparison to the concert session. In the sequence called "elaboration" songs are sung, which are prepared to elaborate on what has been learned (Sposet 2008:11).

[23] Readers, who are interested in a detailed description of the methodology and organization of Lozanov's foreign language classroom may be referred to "The foreign language teacher's suggestopedic manual" (Lozanov and Gateva 1988).

topics, and learner proficiency levels[24]. Furthermore, her method also relies on "bodily-kinesthetic"[25] elements, since students might move, dance, clap to the beat, or perform what they are chanting (Sposet 2008: 18; Zhang 2011: 564). Interestingly enough, reliable studies on the efficiency of this teaching approach cannot be found. Hence, a call for research is necessary to be made at this point.

A similar approach seems to represent the SingLing and LingoRap method proposed by Uwe Kind. New lyrics were written for popular and thus world-wide commonly known melodies instead of jazz songs. With his songs, Kind (2003: xi) aims at promoting "idiomatic expressions, vocabulary, and structures" as well as "practical English language functions"[26]. The use of songs in language learning is justified by Kind (2003: xi) since he is convinced that music affects breathing and thus calms down the body, the state of which improves "mental receptivity". Studies at some European and American schools showed that the method enables a faster and more efficient teaching of foreign languages with better recollection compared to "mechanical classroom drills" (Kind 2003:xi).

The fourth musical methodology is referred to as the contemporary music approach (CMA) which was developed around 1986 by Ronald Anton. This method is strongly built upon research results on the combined usage of both brain hemispheres in order to create the perfect learning condition for the brain (cf. Anton 1990: 1160; Blakeslee 1980: 6). The CMA is available for Spanish, English, and French and uses songs which focus on different language aspects and resemble the style of pop music (cf. Anton 1166ff.). Since Anton (1990: 1169) believes that pop songs and especially their different rhythms work as "memory prompter", he selected a different rhythm for each song he produced. The CMA in a classroom setting follows a three-step procedure. Anton (1990: 1168) argues that with his approach in particular students are given the opportunity to "pull things together" since by writing their own lyrics, which is part of the second stage, all different kinds of language aspects are considered and thus trained. A survey, conducted by Anton (1990: 1169), found that the acceptance of the CMA at least on the side of the learners is high since 93% of the participants reported that they took pleasure in learning with the CMA and even 98% of them had the feeling that the CMA was helpful in their learning process.

[24] A remarkable amount of material for *Jazz Chant* can be found in Graham (1978, 1986, 1988, 1993, 1999, 2001), which represents only a personal selection of all her publications.
[25] The idea of implementing such elements is originally taken from the TPR-approach to language teaching (total physical response), developed by Asher (1969).
[26] For materials, interested readers or teachers are advised to consult Kind's resource book (2003).

The last approach that should be presented is the melodic approach promoted by Carmen Fonseca Mora (2000). The basic notion of this approach is that the teacher alters his or her intonation by accentuating the melody and "prosodic features" of what he or she wants to teach (Fonseca Mora 2000: 150). Through this hyperbolic presentation the intonation becomes more similar to melody. Fonseca Mora justifies her approach by comparing it to the affective talk of mothers to their children, also called 'motherese', which is usually instinctively musical and beyond that plays a central role in first language acquisition. Furthermore, the stimulation of the right hemisphere of the brain through melodies is again seen as decisive in the learning process (cf. Fonseca Mora 2000: 149ff.). Apart from a focus on intonation, Fonseca Mora (2000: 150) also recommends the use of melodies well-known to the students with which certain phrases can be practiced and learned. Particularly supportive for learners is the fact that utterances presented in a melodic form show a reduced tempo as well as syllables become stretched and thus more easily noticeable. Fonseca Mora (2000: 151) therefore believes that rhythmical and melodic speech contributes noticeably to a more holistic way of teaching and language acquisition.

4.2.2 Effects on specific language aspects

According to Murphey (1992b: 6), the value of incorporating music and songs in the foreign language classroom can be significantly increased:

> if we exploit them creatively to bridge the gap between the pleasurable experience of listening/singing and the communicative use of language.

D'Onofrio (1988: V) has seemingly also recognized their potential as well as the many possibilities to exploit songs for FLL. He formulates rather aptly that:

> music in the second language classroom is an advantageous tool that must be exploited in the teaching of language and in developing communicative competence in second-language students. Songs can reinforce grammar points already learned and increase vocabulary both actively and passively, while remaining a veritable wealth of material for the learning of both colloquial and literary expressions. Listening to […] songs can aid greatly in enhancing aural comprehension and […] can develop […] an understanding of symbolic and metaphoric language.

As shall also be seen within this section, songs indeed lend themselves to the teaching and development of diverse foreign language related aspects. This chapter, therefore, provides

an overview, presenting some selected research findings for the different language skills that are said to be teachable through songs.

The language aspect probably most frequently associated with songs is the skill of listening. The utmost aim in teaching listening is to prepare students to understand listening situations that occur in real life. Therefore, songs might be an appropriate input for such situations, which makes them on the one hand a demanding, but on the other hand also an inspiring and effective tool (cf. Sağlam et al. 2010: 22). Although the training of listening skills seems to constitute an easily achievable aim with the use of songs, only very little research exists on its efficacy. For instance, Bygrave (1991: xv) conducted a study with students suffering from learning difficulties in which the influence of musical activities on the development of listening skills was investigated. For the purpose of the study the students were divided into a music group and a story-telling group. The results indicate a positive correlation for the music group since the beneficial effect was not only on listening skills, but also on vocabulary and phonological proficiency. Another study, though only partly concerning listening skills, was conducted by Smith (2003: 113) who attempted to study the effect of transcribing song lyrics on phonological and listening skills of advanced English students in Hong Kong. As expected, problems with sound identification and consequently transcription occurred, which on the one hand added an entertaining aspect to the teaching sequences, but also raised more serious questions of partly lacking phonological competence, which can have a negative influence on overall language comprehension. Smith (2003: 120f.) therefore drew the conclusion that problems with pronunciation as well as accent do have a considerable impact on comprehension, which needs to be made aware to the learners. For this reason, he proposed the use of songs and in particular the transcription of lyrics as a diagnostic tool that helps furthermore to address phonologically weak areas of learners.

Turning to the development of reading skills, it can be claimed that songs represent perfect material in terms of authenticity, comparable to poems. Hence, they offer the language learner contact with authentic language usage (cf. Sağlam et al. 2010: 20). Moreover, general comprehension skills very much depend on the knowledge of expressions and metaphors, the application of which can frequently be found in song lyrics (cf. Jolly 1975: 13; Nuessel and Cigogna 1991: 479). A study examining the progress of language learners' reading skills was carried out by Fitzgerald (1994: 1) for the duration of an entire

year. The participants were elementary school pupils at a bilingual school. The musical treatment they received concentrated on singing and reading at the same time and at the end of the year progress as regards the "literacy skills" of the students could be found. In particular stuttering was successfully reduced and the involvement of the pupils in the activities grew. Like the listening skills also the reading skills and their development by applying music and songs seem to be a field requiring further research. At the same time the amount of studies available does not allow for generalizations.

On the development of writing skills with the support of music or songs a few studies on very young students exist. One of them, replicated in 2001 by Register (2001: 242), examined the impact of musical activities focusing on writing as well as reading skills. Both groups, the control group and the treatment group, received music therapy session. While the musical sessions of the treatment group focused on the development of pre-reading and writing skills through music, the musical sessions of the control group had no specific focus on any skills. Even though both groups benefited from the music therapy treatment, the treatment group outperformed the control group in the posttest. Bolduc and Fleuret (2009: 1), who also researched the effect of music on literacy, are convinced that:

> [p]reschool and elementary programs that combine musical activities and literacy instruction improve student scores on reading and writing tasks.

Although these studies focused on a very young target group of language learners, the findings might be transferable to foreign language learners as the underlying goal of both learning contexts is the improvement and acquisition of language and language skills. Recalling the CMA method of writing own lyrics to a song, it might be interesting to observe whether writing skills might also be enhanced by this method.

The last of the four basic language skills is speaking. The development of speaking skills by means of songs usually happens through actual singing. The fact that the entire class might be singing together can reduce the anxiety of the individual of performing spoken or sung language (cf. Nuessel and Cicogna 1991: 478). Gatbonton and Segalowitz (1988: 473f.) argue that speaking and especially fluency can be enhanced by "automatization", a process that facilitates the use of utterances as regards tempo, effort, correctness, and appropriateness. Relating this to teaching, it appears useful to provide activities where students repeatedly produce such utterances. The use of songs can be a viable tool for this purpose (Bartle 1962: 11) as they usually include quite a number of repetitions (Sağlam et al.

2010: 24). A slightly different approach was applied in Cifuentes' (2006: 47) study investigating the influence of songs on speaking skills. The participants were exposed to different activities focusing on English songs. Additionally, they were asked to talk about their favorite song. Apart from the already reported beneficial effects the use of songs had on motivation, classroom atmosphere, and students' feelings, especially the speaking performances were remarkably positively influenced (Cifuentes 2006: 51). The participants talked about their thoughts and feelings concerning the songs more freely, expressed themselves for a longer time when they found an aspect interesting and gave explanations for their arguments and views. Additionally, their speech was clear and fast (cf. Cifuentes 2006: 54). Kennedy and Scott (2005: 244) applied in their study on "story retelling" and oral production a variety of music therapy elements, such as "music and movement, active music listening, group chanting […], musical games, […], lyric analysis and rewrite activities". The participants were treated for three months and comparisons of pre- and posttest showed that all students of the experiment group achieved higher scores than the control group as regards oral story retelling skills.

In the development of speaking skills, pronunciation plays an essential role. Leith (1979: 540) strongly believes that "there is probably not a better nor quicker way to teach phonetics than with songs". The availability of songs that allow the teacher to deal with phonological aspects appears to be high (cf. Gatti-Taylor 1980: 466). Apart from the positive effect songs may have on phonological awareness, it is also suggested (cf. Harmer 2007: 91; Jolly 1975: 13; Lems 2001: 1) that they can be beneficial as regards the acquisition of speech rhythm and stream. Karimer (1984: 41) studied the link between musical activities and the ability to differentiate between phonemes. The participants were assigned to an experimental group, receiving instruction through songs and a control group who did not. The outcome of the study was that the experimental group achieved higher scores than the control group. Another study on phonemic awareness was carried out by Gromko (2005: 199). In this case the participants were English-native kindergarten children who were tested on their phonemic awareness of the language English. Gromko wanted to investigate whether phonemic awareness can be raised with musical instruction, which clearly represents a research question also relevant to foreign language teaching. After four months of training, the experiment group, who received musical instruction, reported a significantly improved performance on "phoneme-segmentation fluency" (Gromko 2005: 206) in

comparison to the control group, who did not receive musical instruction. Interestingly, comparably more research has been done on speaking skills and pronunciation, nevertheless, this number does also not seem to be high enough to draw reliable conclusions. With regard to the study of speaking skills in general needs to be said that especially assessment might represent a challenging factor for research. Reasons and aggravating factors are time and money constraints as well as the fact that especially the rating of speaking is more likely open to subjectivity and thus calls for a second rater in order to increase reliability.

As already mentioned earlier, songs provide the language learner with idiomatic expressions and at the same time with an abundance of new words. The acquisition of vocabulary through music and songs is suggested by a number of authors in the field of foreign language teaching (cf. e.g., Jolly 1975: 13; Lacorte and Thurston-Griswold 2001: 7; Nuessel and Cicogna 1991: 476). Within the scope of application of music in the classroom vocabulary acquisition definitely is the language aspect most researched of all. An interesting research project by Medina (1993: 5) compared different input forms and their impact on vocabulary acquisition. The participants were split in four treatment groups, using either music or illustrations or both aids. Even though the results showed no significant difference as regards the input format, the group who was treated with music and illustrations learned the greatest amount of vocabulary. The outcome allows the inference that music is at least as effective as conservative teaching methods. (cf. Medina 1993: 15) A similar study was conducted by Benko (2002), who found a positive effect of active music making on the acquisition of new vocabulary, but without using a control group in her study. A further study by Cruz-Cruz (2005: 32) used songs to teach vocabulary and grammar contrasting a music treatment and a control group, which received traditional language teaching. As a result, the music treatment group was able to achieve a higher increase in their scores on vocabulary as well as on grammar tests compared to the control group (cf. Cruz-Cruz 2005: 65). Noteworthy results were also yielded in a study by Li and Brand (2009: 73), who used an all-music, a half-music and a no-music teaching approach and concluded from their findings that even though the all-music approach had a positive influence on vocabulary acquisition, the non-music approach appeared to be more effective than the half-music approach (cf. Li and Brand 2009: 79f.). These rather unexpected results were interpreted by Li and Brand (2009: 82) as possibly being due to the irregularity of the use of

music, which might have led to confusion and distraction among the participants and consequently to inhibition as regards the FLA process. From these results and assumptions it might be inferred that musical treatment in the foreign language classroom might only be advantageous if it is integrated on a regular basis.

Interestingly, two studies on the effect of background music on vocabulary acquisition were also published recently. Whereas Yilmaz (2011: 92) reported a significantly positive effect of background music on vocabulary learning, de Groot (2006: 495), even though also concluding on a general benefit of using it, noted that not all participants in the study took advantage of the background music.

Finally, a rather underrepresented aspect of language learning in combination with music and songs is grammar. Nevertheless, the use of songs for teaching grammatical structures has been suggested by a number of scholars (cf. e.g., Abrate 1983: 9; Anton 1990: 1169; D'Onofrio 1988: V; Graham 1993: xi; Jolly 1975:13; Lacorte and Thurston-Griswold 2001: 7; Nuessel and Cicogna 1991: 481; Sağlam et al. 2010: 19). The only study found to actually test this combination was the already earlier introduced study by Cruz-Cruz (2005) on vocabulary and grammar. A music treatment and a control group received teaching lessons on vocabulary and grammar aspects, either with the aid of music or through traditional teaching methods. The testing instrument was a test that focused on vocabulary and grammatical aspects such as pronoun-verb agreement, adjectives, adverbs, and articles (cf. Cruz-Cruz 2005: 35). Results showed that participants from the music treatment group reached higher scores compared to the control group. Additionally, having being a pretest-posttest-design, the music treatment group also outperformed the control group as regards the gains between the scores of the pre- and the posttest. Hence, the use of songs for teaching grammar aspects was reported to be more efficient than the use of traditional teaching methods. (cf. Cruz-Cruz 2005: 65ff.)

In addition to this review, it might be enriching to report on a further study conducted by Sposet (2008) in order to get a clearer picture of the efficiency of music and songs. Sposet's (2008: 51ff.) study is a meta-analysis of 23 studies that had been conducted in the research field of music and songs in FLL in the time span from 1937 to 2007. In her meta-analysis she coded the data from the diverse studies according to features and results. Additional information on the studies such as target language for which the study was conducted, sample size, variables, methodology, length, and age of the participants was

collected and considered in her analyses (cf. Sposet 2008: 83). Some of the studies Sposet used for her meta-analysis have already been presented in this chapter (cf. Anton 1990; de Groot 2006; Karimer 1984; Medina 1993). Results revealed that only eight studies out of 23 reported minor or no differences between treatment groups (i.e., groups receiving musical treatment) and control groups. More than the majority of studies, i.e., 15, found a positive correlation between music treatment and FLA/SLA. Out of these 15 positive studies, only one quarter falls into the category of experimental studies. Nonetheless, even though Sposet's meta-analysis seems to portray a more positive than negative picture of the value of music and songs in language learning, she herself does not venture to draw an explicit conclusion (cf. Sposet 2008: 90).

In line with Sposet, it can be noted that having reviewed a considerable number of studies that investigated the effect of music and song on various language related aspects and skills, a satisfactory conclusion is hard to obtain. Stansell (2005: 36) observed that it is commonly not believed that areas such as vocabulary, culture, pronunciation, and grammar could benefit from the use of music and songs, which might account for the only partly satisfactory amount of research carried out in these areas.

Generally, it can be concluded that the place of music and songs in FLL and teaching is broadly justified. Additionally, it has become evident that this research field clearly needs an increase in the number of studies focusing on diverse aspects of language competence, most of which are currently still under-researched. However, even though only a limited number of reliable studies is available in this field, their predominantly positive outcomes still provide evidence for recognizing music und songs not only as an enriching, but highly effective element and tool applicable to almost all aspects of FLL. Clearly, the present study is only interested in the effect of songs on recall performances, however, recall might be considered a fundamental aspect of learning in general and thus an improvement of recall abilities could affect all other language skills positively.

5. STUDY RATIONALE AND METHODOLOGY

In this chapter the design and methodology of the actual research project of this thesis is elucidated. Firstly, the rationale for the study is presented, followed by the statement of its

research questions and hypotheses, which serve as the point of departure for the study's design and methodology. Apart from introducing the design of this research project, the final section covers details on participants, sampling procedures, instruments and materials, procedure and data collection, as well data scoring and statistical procedures.

5.1 Purpose and rationale

The purpose of this research study is to investigate the effect teaching EFL learners texts through the use of pop songs has on text recall performances. Moreover, this study also aims to investigate the occurrence of INMI/the din in relation to the input formats of songs and spoken recordings in the EFL classroom. Having reviewed a considerable body of literature and research on different fields and areas related to the role of music in FLA and adolescence, several reasons for the choice of this research topic shall be presented briefly.

Music and language are two systems that can be considered at least partially integrated in the human brain, but which more certainly show strong cognitive interactions. Moreover, specific cognitive processes related to music and language, such as priming effects through music, the mnemonic feature of music, and the phenomenon of the din, lead to the belief that music has the power to work as an effective tool for memorization processes of verbal information (see chapter 2). Hence, this study further investigates music's effect on memorization processes.

Apart from theoretical foundations and evidence, a common belief is held among language learners and teachers that verbal information is learned and recalled more easily through music and songs. Most people can report on the experience that hearing a melody instantly makes them recall the corresponding lyrics, even if the song has not been heard for a considerable time. Experiences like these contributed strongly to the decision of researching exactly this relation in a FLL context.

As illustrated in chapter 3, for the integration of music and songs in FLA, a solid basis could be established that draws most strongly upon innatist and sociocognitive approaches, as well as upon the edge of chaos theory. As a result, the integration of music and songs in FLL is justifiable by FLA theories, which render them an appropriate tool for language memorization and acquisition processes.

Adolescents are strongly drawn to and interested in pop music, which has important implications for pedagogical considerations on the integration of music and songs in the foreign language classroom. Through such an integration, teachers work with authentic material that addresses EFL learners' interests and (musical) intelligences, all of which leads to an increased motivation to learn. Motivation, in turn, is considered a fundamental force in FLA and FLL. In this respect, not only is the value of music and songs in EFL teaching and learning assured, but its positive effect on the learning performance and success is also guaranteed (see chapters 3 and 4).

Lastly, as could be seen in chapter 4, only an insufficient number of studies on the effect of music and songs on FLL and associated competences exist. The situation appears to be even worse as regards studies on verbal recall. In fact, only one study (Smith Salcedo 2002) exists that investigated the combined effect of music and INMI/the din on verbal recall. Hence, one of the motives for conducting a study on the effect of music on verbal recall is the dearth of available studies, as well as the fact that the positive effect on verbal recall has important implications for several sub-competences in FLL and thus is not restricted to a particular language skill.

In this sense, if text recall can be proven to be facilitated and accelerated by the use of pop songs, these findings will have further implications and thus imply that music can aid memorization processes in the course of FLA in general.

5.2 Research questions and hypotheses

Since the main aim of this study is to investigate whether verbal information in a foreign language, in this case English, is recalled more successfully with the help of songs and whether a higher din occurrence is experienced when listening to songs, these issues also constitute the overarching research questions of this research project. This study aims to answer these primary questions, which are specified in a number of detailed research questions as follows, along with the corresponding hypotheses:

1. *Do Austrian EFL learners at an elementary language level achieve higher immediate text recall scores if a text is learned in the form of a song?*

H_1: Austrian EFL learners who learned the text in the form of a song achieve significantly higher immediate text recall scores compared to those who learned the text in the form of a spoken recording of the lyrics.

2. *Do Austrian EFL learners at an elementary language level who learned a text through a song achieve better scores in delayed text recall than those who learned a text through a spoken recording?*

   H_2: Austrian EFL learners who learned the text through a song achieve significantly higher delayed text recall scores compared to those who learned the text through a spoken recording.

3. *Do Austrian EFL learners at an elementary language level who learned a text through a song experience a higher and more frequent occurrence of INMI?*

   H_3: There is a significantly higher and more frequent occurrence of INMI among Austrian EFL learners who learned the text through the song compared to Austrian EFL learners who learned the text through the spoken recording.

4. *Do text recall performances and the occurrence of INMI among Austrian EFL learners differ with respect to sex?*

   H_4: There is no significant difference of immediate and delayed text recall performances between female Austrian EFL learners and male Austrian EFL learners, regardless of the input format.

   H_5: There is no significant difference as regards the occurrence of INMI between female Austrian EFL learners and male Austrian EFL learners, regardless of the input format.

5. *Do text recall performances and the occurrence of INMI among Austria EFL learners differ between the Gymnasium and the Hauptschule?*

   H_6: There is no significant difference of immediate and delayed text recall performances between the Austrian EFL learners of the two selected schools.

   H_7: There is no significant difference as regards the occurrence of INMI between the Austrian EFL learners of the two selected schools.

6. *Do Austrian EFL learners at an elementary language level who liked the song or the text used as the input stimulus for this study show better immediate and delayed text recall performances?*

H_8: Austrian EFL learners who liked the song or the text achieve significantly higher immediate and delayed text recall scores compared to Austrian EFL learners who did not like the song or the text.

7. *Do Austrian EFL learners at an elementary language level who experienced a din occurrence show better immediate and delayed recall scores, regardless of the input format?*

   H_9: Austrian EFL learners who experienced a din occurrence achieve significantly higher immediate and delayed text recall scores than those who did not experience a din occurrence, regardless of the input format.

8. *Do Austrian EFL learners at an elementary language level who already knew the song used as the input stimulus for this study show better text recall performances?*

   H_{10}: Austrian EFL learners to whom the song was known achieve significantly higher immediate and delayed text recall scores compared to Austrian EFL learners to whom the song was new.

Clearly, hypotheses 1, 2, and 3 can be considered the main hypotheses of this study, as hypotheses 4 and 5 are concerned with sex differences and hypotheses 6 and 7 with differences between the school types. Hypothesis 8 addresses the question of whether a link between text recall performances and positive attitudes towards the stimulus exists, while hypothesis 9 addresses another potential link between text recall performances and din occurrence. Hypothesis 10 focuses exclusively on the presumably small part of the sample who were already familiar with the song and is more directed at investigating out-of-school context learning as well as incidental language learning.

5.3 Research design

This research project combines a quasi-experiment and an accompanying survey and is closely oriented toward a previous study by Smith Salcedo (2002), who also investigated the effect of music on text recall and INMI/the din. The combination of methods, such as those applied in this study, is a typical feature of the so-called mixed methods approach. This specific and rather new research method allows for the combination of quantitative and qualitative data in one research project. Its major advantage lies in the fact that quantitative and qualitative data can compensate each other's weaknesses and thus provide deeper and

enriched research results. (cf. Dörnyei 2007: 44f.) This study's quasi-experiment gathers exclusively quantitative data as does its accompanying survey. However, the questions concerning the reasons why the song or text was liked or not and the question concerning the activities that accompanied the din occurrence are clearly of a qualitative nature. It thus can be asserted that this research project resembles a mixed methods approach.

The main component of this research project is the quasi-experiment. Quasi-experiments have all the features of an experiment except random assignment to sample and treatment groups, as is the case in this study (cf. Cohen et al. 2007: 274; Kirk n.d.: 24). In experiments and quasi-experiments, one variable is usually changed in order to investigate the effect this change has on another variable. The changing variable is referred to as the independent variable while the dependent variable is measured to discover the effect of the independent variable (cf. Cohen et al. 2007: 272). In this quasi-experiment, the input, i.e., either the spoken or sung version of the text, is the independent variable and the outcome, i.e., the test scores, is considered the dependent variable. In experiments and quasi-experiments, it is suggested to measure the effect and change observed in one sample group against a control group (cf. Cohen et al. 2007: 275). In this study, two treatment groups were used: one listening to a song and thus labeled sung treatment group or in brief song group, and the other listening to a spoken recording of the same song's lyrics and thus labeled spoken treatment group or in brief text group. For this reason, the spoken treatment group also functions as the control group for the sung treatment group. This is slightly different to Smith Salcedo's (2002: 92) classification as she employed three comparison groups and an additional control group, which received no treatment at all. Beyond that, another alteration compared to Smith Salcedo's study has been made. At the recommendation of my supervisor, the quasi-experiment includes a pretest and thus represents a pretest-posttest design. Smith Salcedo (2002: 122) also suggests the replication of her study with the use of a pretest. In general, pretest-posttest designs are commonly used in educational and behavioral research in order to contrast groups or determine change as a result of one or more specific treatments. The use of a pretest specifically reduces error variance and renders a test more convincing (cf. Dimitrov and Rumrill 2003: 159f.). Like Smith Salcedo's (2002: 89) study, this study comprised two posttests in order to additionally test delayed text recall, i.e., long-term memory effects. The survey used in this study served to collect background data on the participants, the appraisal of the respective input, and the

occurrence of the din, as well as to check their familiarity or non-familiarity with the song or text. The survey was conducted at the same time as the quasi-experiment.

The quasi-experiment with its pretest-posttest design was devised to test hypotheses 1, 2, 4, 6, and 10, while hypotheses 3, 5, and 7 were tested with the help of the survey. Through the combination of both methods, also data for the testing of hypotheses 8 and 9 were obtained.

5.3.1 Participants and sampling

The participants in this study were 82 Austrian students who currently attend two different school types in Upper Austria. Students from four school classes, two from a Hauptschule (HS, secondary modern school) and two from a Gymnasium (AHS, grammar school), were chosen and according to their almost equal distribution of participants (HS: N=39, AHS: N=43), comparable results could be secured. The students of these four classes were all attending seventh grade and therefore their age ranged between 12 and 14 years. As regards the sex, an equal distribution could not be reached as 47 female participants, i.e., 57% of the participants, were faced with only 35 male participants, i.e., 43% of the participants. Due to availability constraints, two HS classes had to be chosen which are designated as integrated classes and thus in one of the two classes, which was later assigned to receive the sung treatment, five students have special educational needs[27] and in the other class, which later received the spoken treatment, two have special educational needs. Throughout the experiment these participants did not receive any extra support. In order not to reduce the sample size and the group sizes the data was included in all analyses.

In this study, as in most empirical studies that are conducted in an educational context (cf. Cohen et al. 2007: 274), a random assignment of participants to groups and subsequently to treatment groups was impossible due to practical constraints. Hence, the students were treated and tested in their intact class settings. This type of non-randomized sampling is generally referred to as cluster sampling, while convenience sampling depicts a sampling process that is oriented toward opportunity and thus chooses participants according to availability (cf. Cohen et al. 2007: 112ff.). Both forms of sampling were applied

[27] In Austria, students with special educational needs (= Sonderpädagogischer Förderbedarf) are in general ready for school, but unable to follow the lessons due to physical or psychological impairment. For this reason, they are taught according to a special education curriculum and receive supplementary assistance from an additional special education teacher. (cf. Bauer-Böhm n.d.; BMUKK 2008)

in the present study, since two teachers and in total four of their presumably complementary classes were chosen according to availability.

Consequently, the sung treatment group of the secondary modern school (HS) comprised 20 participants with an entirely equal gender distribution, and the spoken treatment group of the same school comprised 19 participants, 10 of which were female and 9 of which were male. The sung treatment group of the grammar school counted 24 participants, among them 14 female and 10 male participants, and the spoken treatment group consisted of 19 participants, of which 13 were female and only 6 were male. In total, 44 participants were allocated to the sung treatment group and 38 to the spoken treatment group. As explained above, it can be seen that within the quasi-experimental design of this study, sample and treatment groups are typically non-random as well as non-equivalent.

5.3.2 Materials and instruments

This research project applied different instruments and materials, namely a pop song and a spoken recording of its lyrics, a gap-filling test in order to test text recall, as well as two questionnaires in order to collect background information, information on the familiarity with the song or text, and information on experiences with the din.

The starting point for the development of the research material in this case was the search for an appropriate song. A number of criteria was established for the choice of the song. Since research (cf. Heinzelmaier 2011; ORF 2005) has shown that the majority of Austrian adolescents prefer listening to pop songs, the song for this study was chosen from the pop genre with the aim of addressing their personal preferences and interests most closely. Furthermore, in order to study the potential relationship between song liking and performance results (cf. H_8), it was crucial to find a song that was enjoyable and attractive to the students. The creation of ideal conditions for text recall as proposed in previous studies strongly influenced the further criteria. For this reason, simple melody, a high amount of repetitive elements as regards musical elements, i.e., melody and rhythm, and linguistic elements, i.e., structures and words, (cf. Wallace 1994), and a good intelligibility of the words (cf. Allmayer 2009: 132) served as the prerequisites for the choice. Apart from these rather structural criteria, the song also needed to suit the language proficiency level of the students in a third form. Although the Common European Frame of Reference (CEFR)

suggests that students at this stage have usually reached A2 level in receptive as well as productive competences and skills (cf. Horak et al. 2010: 20), the teachers of the participating classes were asked to judge the appropriateness of the song's level of difficulty regarding grammar and vocabulary. It goes without saying that songs with offensive or inappropriate content were excluded from the search. In addition, further criteria related to the study design needed to be considered. In a further step, the song's lyrics were recorded in a spoken version; the text of the song also had to make sense without the accompanying music and melody and thus should tell a story. The most challenging criterion for the selection was that students should not be familiar with the song and consequently should not have heard it before so that previous knowledge about the song's text would not distort the results.

Finally, the pop song "Stuck" by Stacie Orrico was considered to satisfactorily fulfill the criteria. It entered the Austrian charts in July 2003 and stayed until November of the same year, which was 19 weeks in total with its peak at the 8th position in the charts (cf. Austriancharts n.d.). Since most of the students were born in 1999 and 2000, they were only three to four years old when the song reached its highest degree of popularity in Austria. Obviously, radio stations have continued playing the song in the years after 2003 up to today. However, according to personal impressions, the frequency nowadays was considered low. The chance of recognition of the song among participants was low, but not totally excludable. As regards content, the song is about a broken love and a girl who is lovesick and thus can be considered to tell a story that would be enjoyable to listen to, even without music. As regards its structure, the song counts 403 words and consists of three verses, each of which counts approximately 24 words and which are not repeated, but are accompanied by the same melody. The refrain has a count of 91 words and is repeated three times throughout the song, as is the bridge, which consists of 9 words. Logically, the melody that accompanies the refrain remains the same as the melody that accompanies the bridge. The melody is simple and easy to grasp and the words are sung intelligibly.

In contrast to Smith Salcedo's (2002) study, English songs from the pop song genre were chosen instead of traditional Spanish folksongs or romance ballads. Furthermore, due to practical and time constraints, the entire study was based on only one song, whereas Smith Salcedo (2002) tested the recall from three songs.

Subsequently, the instrument to essentially test word recall in the pre- and posttests needed to be developed. Since only one song was planned to be tested, the use of a cloze test with every seventh word deleted, such as that used by Smith Salcedo (2002), was assumed to involve an elevated risk of guessing from the context. For this reason, a gap-filling test seemed more appropriate as it allowed for deciding on the omitted words in a less random manner (cf. Buck 2001: 70). In his book on how to assess listening, Buck (2001: 70) encourages the proposal of Henning et al. (1983; cited in Buck 2001: 70) to purposefully omit content words, which are words with "high information load" and "the least predictable words" of a sentence and are therefore exceedingly hard to guess. The proper term for this type of gap-filling listening test is a listening recall test. This form of gap-filling test most accurately examines word-recognition skills (cf. Buck 2001: 73). According to these criteria, 21 words were selected for actual omission, the appropriateness of which was further discussed with my supervisor. More than half of the total of 21 words were verbs, followed by nouns. Furthermore, an equal distribution of omitted words over the text was sought after.[28] In the gap-filling test, the omitted words which were repeated throughout the song were indicated with XXX and the entire passage that was repeated was printed in grey.

As regards the spoken recording of the song lyrics, a speaker that resembled the characteristics of Stacie Orrico was searched after, which is clearly a complicated undertaking in Austria. However, via Facebook it was possible to make contact with a rather distant acquaintance: a female American approximately the same age as Stacie Orrico, who willingly recorded four different spoken versions of the song lyrics. In order to create not only a pleasurable but also almost equivalent recording, she was instructed to read the lyrics approximately at the same speed as the song, with varying intonation in order not to bore students, especially with the repetitive elements. Furthermore, stylistically, she was asked to read the text as if it was a ballad or a poem. The slowest and most passionate recording was ultimately chosen. In addition, the spoken version was recorded by means of an iphone4, which produced qualitatively excellent and remarkably intelligible recordings.

The questionnaires[29] developed for this study only partly resembled the one applied by Smith Salcedo (2002: 168), who was mainly interested in the din occurrence and the students' reaction to the incorporation of songs in the Spanish lessons. The first questionnaire of this study had the purpose of revealing whether the song or the text was

[28] For the actual listening recall test as well as the lyrics indicating the omitted words, please see appendix.
[29] For the two questionnaires used, please see appendix.

liked by the students and whether it was totally new to them. A rationale for these questionnaire items has already been discussed above. In order to avoid students simply ticking that they knew the song or the text, additional questions about the song or text were added so that students had to justify their answer. The second questionnaire, apart from eliciting whether the students heard the song between the first and second posttests, aimed at collecting data on the occurrence of the din. For this purpose, three types of information were obtained, namely whether a din occurred, when it occurred, and whether the students were able to control it, similar to Smith Salcedo's (2002: 168) study. For reasons of comprehensibility, the questionnaires were composed in German.

In order to determine whether the instruments and materials were viable and understandable for 12-14 year old Austrian students, a pilot study was conducted at a new secondary modern school in Vienna[30] in mid-January 2013. Similarly, this pilot study was submitted to and approved by the local educational authorities of Vienna. The headmaster, teachers, and parents were informed, as well as the students who voluntarily participated in the experiment. Ten students, eight of whom were male and two female, from the seventh grade were randomly assigned to a sung treatment group and a spoken treatment group. Each group went through the procedures of the pretest, the group specific treatment, and one posttest. As only one and a half lessons were available for the piloting of both treatments, it was only possible for the students to complete the first questionnaire. The second was only discussed in terms of comprehensibility as the questions on the din occurrence could not be answered immediately after the treatment. On all accounts, the pilot study ascertained the viability of the entire procedure and also showed that the timing was entirely appropriate for a 50-minute-lesson at school. Moreover, the song and text was not known to any of the ten participants, while all of them took pleasure in listening to the recordings. The pretest results additionally showed that only two students could guess either one or two words from the context, which was considered negligible because these were three entirely different words. The questionnaires did not pose any problems for the participants, which was also reflected in their positive feedback. Since the feedback on the entire experiments, its procedure, and the materials was positive, as well as the absence of any problems during the piloting of it, the study design and its materials and instruments remained unchanged. Still, going through the entire procedure was indeed essential in order

[30] The appropriate German equivalent for this rather new school type in Austria is Wiener Mittelschule (WMS).

to become more self-assured and to avoid trouble when conducting it with the actual participants.

In Upper Austria, where the actual study took place, a number of statutory regulations for the conduct of a research project among minors at the level of compulsory education exist. Among these, the study and all corresponding inclusive material need to be submitted to the local educational authorities, who then decide on the approval or disapproval of the project. In a second step, the headmasters need to agree on granting access to their schools and the teachers of the classes involved need to agree on offering their students and their often very precious time. The participation of the students is required to be voluntary and parents need to be informed and asked for permission prior to the realization of the project. As regards the results of the study, the participants' anonymity and confidentiality concerning the handling of the data need to be guaranteed and secured. To fulfill these legal requirements, the entire study had been submitted to and approved by the local educational authorities, access had been granted by both headmasters and teachers, a letter had been issued to the parents in which they were given enough time and the possibility to object to the participation of their child, and the students' willingness to voluntarily participate in this study was inquired and confirmed by all of them. Moreover, students were informed that none of their performances would have an influence on their grades and results were only used for this research project. As regards anonymity, birth dates were used to match the questionnaires and recall tests of the students correctly. To further ensure the anonymity of the participants and to conform to research ethics, neither the school names and locations nor the actual class information (e.g., 3a, 3b, 3c, etc.) is indicated. Rather, the form of treatment accounts for their respective labels (e.g., T for text group and S for song group).

5.3.3 Procedure and data collection

Data collection for the actual study took place in the period from the 23rd of January until the 8th of February 2013 and was carried out by the researcher herself. At each school, one class was randomly assigned the sung treatment and the other the spoken treatment. The procedure, which is subsequently described, was identical in all four classes, except for the

fact that the sung treatment groups listened to the song and the spoken treatment groups listened to the spoken recording.

In the first session, the students received a brief introduction about the investigator and that this experiment was part of her diploma thesis. Furthermore, confidentiality and anonymity was emphasized. Details on how to handle the gap-filling test were explained and the participant were informed that they might not be able to fill in a single word in the pretest. Nevertheless, they were positively encouraged to write down whatever came to their minds even though they might not be sure about the correctness. In order to avoid distorting effects on the test results, the participants were informed about the purpose of the study, but they did not know that they would receive the identical recall test on subsequent occasions. The pretesting phase usually took only 15 minutes. Depending on the time frame available in each class, the actual treatment phase took place either on the same or the following day. In this second session, in both treatment groups each participant was provided with the song lyrics, similar to Smith Salcedo (2002: 89).

Unfortunately, the exact procedure of the treatment remained somewhat opaque in Smith Salcedo's study (2002; 2010), as she only reports that a total of six treatments was necessary for all three songs. Furthermore, it appears slightly contradictory that in her account of the study procedure she informs that the students were aided in the comprehension of the song lyrics, while in the limitations she commiserates that too many language elements were unfamiliar to the participants and that in future research more time should be dedicated to focus on comprehension and meaning (cf. Smith Salcedo 2002: 122ff.; 2010: 24). Consulting an earlier text recall study by McElhinney and Annett (1996: 398), their total number of three exposures to the input was considered an appropriate and sufficient number for the song of this study and was thus taken over.

Taking into consideration Smith Salcedo's (2002: 123) suggestion, vocabulary comprehension and meaning-making was focused on after each listening phase. After the third listening trial, the lyrics were collected and the gap-filling test, i.e., the first posttest, which tested immediate text recall, was distributed. Subsequently, the first questionnaire was distributed. This second session usually required 40-50 minutes in each treatment group. After a period of exactly two weeks, the second posttest, which is of course identical to the first posttest and the pretest, was distributed in order to test delayed text recall and long-term memory effects. In this third session, the gap-filling test was re-administered to

the students, without receiving any form of treatment. After having completed the gap-filling test, the second questionnaire was administered. In Smith Salcedo's (2002: 89) study, the time slot between the first and second posttest was the same, however, she employed a third treatment group, which was aided with text recall in the gap-filling test by playing the melody of the respective song as a trigger. Due to constraints regarding practicality and sample size, this distinction in the testing format was neglected in the present study.

Turning briefly to the conditions for the experiment, it can be said that unfortunately the spoken treatment group of the secondary modern school was the only class in which the class teacher was present during the entire experiment. In retrospect, this class appeared extremely passive and did not participate with as much motivation as other classes in the experiment. This subdued participation might be assigned to the teacher's presence. With regard to discipline, elevated effort was made to assure that students did not copy from or share information with their neighbors. Obviously, not all classes behaved in the same way. The sung treatment group of the grammar school was particularly hard to discipline and therefore experienced the noisiest conditions.

5.3.4 Data scoring and statistical procedures

This subchapter provides information on the scoring procedures applied to the gap-filling tests and the preparation of the data for further statistical analyses, which will be presented and explained subsequently.

Concerning the scoring of gap-filling tests, Buck (2001: 72) suggests counting the number of gaps which contain the correct word and using the total as the test score. In the listening gap-filling tests two scoring methods are possible: one only counting totally correct answers and the other counting a number of acceptable answers. Clearly, the former method would result in fewer correct words and thus lower test scores than the latter. It goes without saying that applying the second method involves discussions about so-called borderline cases. (cf. Buck 2001: 72f.) Smith Salcedo's (2002: 93) scoring procedure resembles the one suggested by Buck; however, she did not specify which scoring method she applied in detail. Since the present study only wanted to test text recall, orthographic and grammar mistakes were regarded less important as long as the omitted word was recognizable. Consequently, the scoring method also taking into account alternative answers

was applied. After reviewing the response items for the first time, a list of borderline cases was compiled. One half of the list was comprised of response items with orthographic mistakes whereas the other was grammatical mistakes. Responses showing orthographic mistakes were counted as correct items, i.e., awarded 1 point, after consulting a second rater who agreed that all of these mistakes appeared to be only minor mistakes. In terms of grammar mistakes, tense mistakes occurred rather frequently. One major type of mistake was that responses either indicated present tense where past tense would have been the correct answer, or vice versa. Another frequent mistake was missing out on the –ing-form of the present continuous. In accordance with my supervisor, these items were scored as half-correct and thus participants only received 0.5 points for such items. Overall, all gap-filling tests were scored twice in order to avoid any rating errors.

After scoring procedures were accomplished, the recall test data along with the quantitative and qualitative data obtained in the questionnaires were keyed into an Excel spreadsheet where consecutive record numbers were allocated. As in some of the statistical procedures the differences between pretest and immediate recall test scores as well as between pretest and delayed recall test scores were needed, these differences had been calculated before all quantitative and quantified data was fed into the SAS program.

The statistical analyses that were performed on the data will be presented in the following chapter along with the results and a detailed discussion. However, a brief comment on statistical testing and some preliminaries to it needs to be made at this point. Given that all hypotheses of this study are concerned with the testing of difference between groups, inferential techniques need to be applied, which allow for inferences about a larger population on the basis of the results found for a representative sample group (cf. Bachman 2004: 33f.; Cohen et al. 2007: 504). One preliminary to applying inferential techniques in statistics is to make sure that certain assumptions are fulfilled. Usually, normality of distribution of the population from which the two samples are taken, homogeneity of the population's variances, as well as the independence of observations are the main assumptions that need to be fulfilled in order to conduct inferential testing (cf. Larson-Hall 2010: 373f.; Bachman 2004: 236f.). Moreover, statistical testing theory further distinguishes between parametric (e.g., t-tests, ANOVA) and non-parametric tests (e.g., Mann-Whitney-test, Kruskal-Wallis-test) both of which try to provide inferential results (cf. Aufhauser and Röhrling 2010/11: 172; Cohen et al. 2007: 503). The assumptions that need to be satisfied

for inferential techniques consequently also apply to parametric tests, with a normally distributed population constituting the most important assumption (cf. Aufhauser and Röhrling 2010/11: 172).

Turning to the present study, firstly, the prerequisite of the independence of observations was satisfied by ensuring that all participants worked independently during the entire research project. Secondly, as it is suggested that the homogeneity of variances might be negligible (cf. Aufhauser and Röhrling 2010/11: 172), it was in fact neglected in this study. Ultimately, in order to test the normality of distribution of the data obtained in this study, the program SAS provides four tests. Hence, the gain scores between pre- and posttests[31] were used in order to conduct these tests. Especially, the Kolmogorov-Smirnov-test is perceived as an extremely stringent test (cf. Aufhauser and Röhrling 2010/11: 154). As can be seen in the tables below, the first two tests (Shapiro-Wilk and Kolmogorov-Smirnov) do not reach significance ($p < 0.05$) neither in the analysis of the gain scores between pre- and immediate posttest scores (Shapiro-Wilk p=0.1874; Kolmogorov-Smirnov p=0.0915) nor in the analysis of the gain scores between pre- and delayed posttest scores (Shapiro-Wilk: p=0.1168; Kolmogorov-Smirnov: p=0.1500).

Tests for Normality		Posttest 1			Posttest 2		
Test		*Statistic*	*p Value*		*Statistic*	*p Value*	
Shapiro-Wilk	W	0.978606	Pr<W	0.1874	0.974079	Pr < W	0.1168
Kolmogorov-Smirnov	D	0.091029	Pr>D	0.0915	0.070210	Pr > D	>0.1500
Cramer-von Mises	W-Sq	0.079695	Pr>W-Sq	0.2136	0.057005	Pr > W-Sq	>0.2500
Anderson-Darling	A-Sq	0.505518	Pr>A-Sq	0.2057	0.441366	Pr > A-Sq	>0.2500

Variable: gain scores posttest1; N=82. Variable: gain scores posttest2; N=77

Table 1: Tests for normality of posttest 1 and posttest 2

In this respect, the data clearly show a normal distribution as regards gain scores between pre- and posttests and thus require the use of parametric tests (e.g., t-test, ANOVA) for further analyses.

[31] The rationale for using gain scores for the tests for normality and consequently also for the analyses will be provided in chapter 6.

6. RESULTS AND DISCUSSION

This chapter sets out to present the results obtained from the data along with the statistical procedures performed. In the second part, the results are discussed in relation to the research hypotheses and in the light of previous studies and concepts introduced in the literature review. The chapter concludes on the limitations of this study, identifies areas for further research, and discusses the implications this study has on foreign language teaching and learning.

6.1 Data analyses and results

In the following subchapters, details about the analyses, the statistical procedures, and the results are presented. Given that two different methods were applied to obtain quantitative as well as qualitative data, the quasi-experiment and the survey analyses and results are presented separately. Only in the last subchapter will results based on combined analyses follow.

6.1.1 Analyses and results of the survey

In order to obtain results from the two questionnaires different methods were applied. Closed questionnaire items were analyzed by counting the frequencies of the responses selected by the participants, whereas responses to the open questions were sorted and combined into larger categories. Some item responses needed to be quantified in order to allow them to be fed into the SAS program for statistical testing procedures.

The first item of the first questionnaire, which was distributed directly after the first post test, dealt with the appraisal of the song or the text (= spoken recording) by the participants. As can be seen in the graph below, 90.9% of the participants who listened to the song stated that they liked it, while 9.1% expressed a dislike. In the spoken treatment group, 76.3% of the participants indicated a positive appraisal of the text and 23.7% did not like it at all.

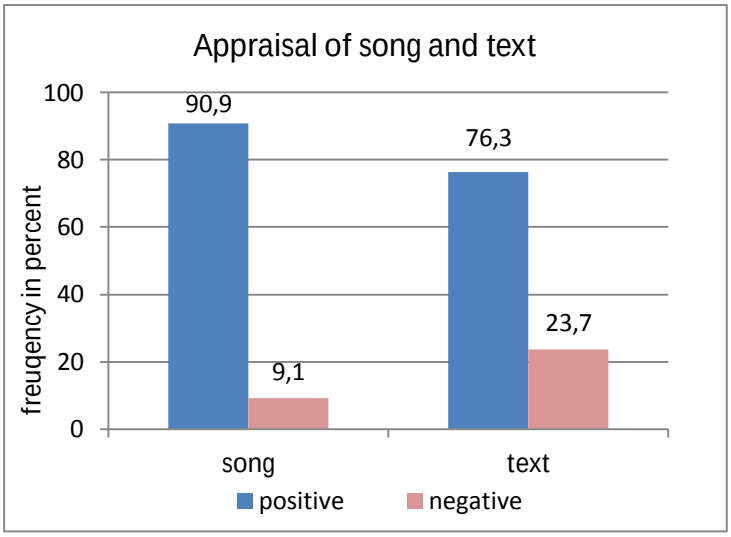

Figure 1: Appraisal of song and text (song group: N=44; text group: N=38)

Comparing these results shows that the appraisal of the song was considerably higher, i.e., more than 15 percentage points, and that the negative appraisal of the song was consequently also noticeably lower.

Since the questionnaire item required the participants to give arguments for their like or dislike of the song or text, a frequency count of the reasons quoted was conducted. The following graph shows the accumulated total numbers of the answers given whereby it needs to be considered that multiple answers could be given by each participant. Reasons for a positive appraisal are colored blue and those for negative appraisal are displayed in red.

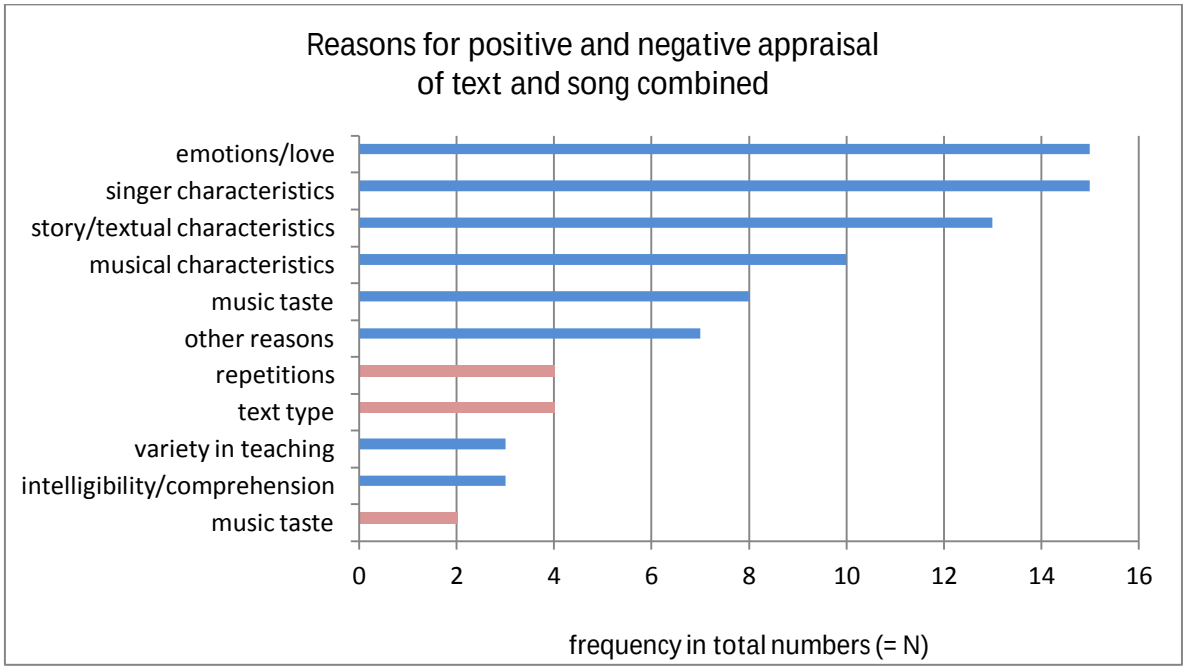

Figure 2: Reasons for positive and negative appraisal of text and song combined (frequency in total numbers)

The fact that the song evoked and dealt with emotions was one of the most frequently specified reasons (N=15) for a positive appraisal of both song and text. The emotion and theme of love was most often indicated. The same frequency (N=15) was reached for singer characteristics, among which the voice of the singer and her musical interpretation was most valued. Furthermore, the way the text is written, its content, and the fact that the story could take place in real life was subsumed under category three (N=13). Musical characteristics, such as rhythm and melody were mentioned positively ten times (N=10). Interestingly, music taste divided the opinions as it was indicated eight times (N=8) as a factor contributing to a positive appraisal and twice (N=2) as a factor leading to negative appraisal. The category other reasons (N=7) subsumes different less specific adjectives that account for a positive evaluation of the song or text. The most frequent answers as regards negative evaluation were concerned with the high number of repetitions in the song/text (N=4). This answer is in a tie with the negative appraisal of the assumed text type of the spoken recording (N=4), since those participants believed the text to be a poem, which is a text type they generally seem to have a distaste for. Less frequently (N=3) intelligibility and comprehension of the song/text were indicated, similarly to the perception of the song/text to be a variation in teaching style.

The last item of questionnaire one examined whether the participants had heard the song before. This was important as it might imply that the lyrics might also be familiar to a participant, which would have changed and distorted the results of the study. In fact, a total number of seven participants, all of whom were in the song group, knew the song before. As will be seen in the following subchapter, these seven participants were partly excluded from comparative analyses of test scores.

Turning now to questionnaire two, which was distributed after the delayed recall test, a similar item was used to determine whether the participants listened to the song in the two weeks period between immediate and delayed recall test (= posttests). In fact, only three participants indicated that they had heard the song, but since their answers showed that they heard the song being played somewhere only by chance, they were not excluded from later analyses. Questionnaire two dealt in major parts with the occurrence of the phenomenon din. Results, which were obtained through frequency counts, about the din occurrence experienced by participants from the song and the test group are illustrated in the graph below. Unfortunately, five participants in total were absent when the second

questionnaire was administered and thus the song group shrank to 41 participants and the text group to 36. In order to obtain comparable results, percentage scores were calculated for both groups. As can be seen in figure 3, the overall din occurrence was considerably higher in the song group with 82.9% participants reporting on a din occurrence compared to the text group, where a smaller number, i.e., 63.9% of the participants, experienced the din in the period of two weeks between the two posttests. More detailed information could be gained when asking those 34 participants from the song group and those 23 from the text group who had experienced the din about its temporal frequency. Similarly, from the frequency counts percentage scores were calculated in order to make results comparable.

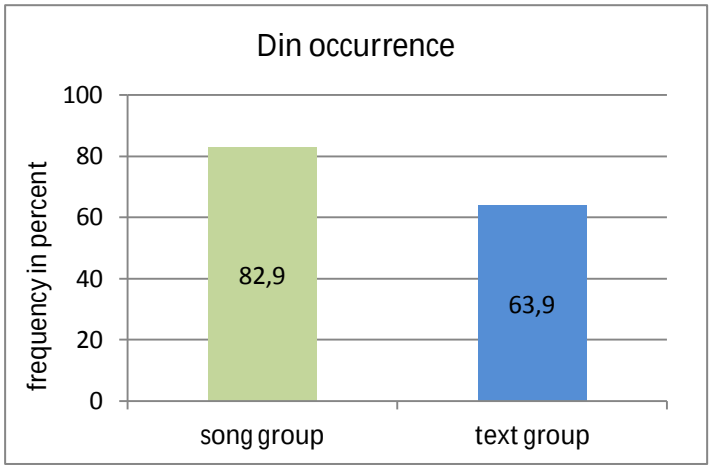

Figure 3: Din occurrence in song (N=41) and text group (N=36)

In figure 4, it can therefore be observed that more than half of the participants from the text group who experienced the din, i.e., 52.2 %, had a din occurrence once in two weeks. This figure corresponds to 31.6% of all text group participants. In contrast, only 23.5% of the participants with a din experience from the song group reported on a onetime din occurrence, which corresponds to 18.2% of all song group participants. Conversely, the case that the din occurred several times per week was witnessed by a large majority, i.e., 67.6% of the participants from the song group with din experience. Still, it cannot be denied that a remarkably high number of 43.5% of participants from the text group with a din experience also reported on its occurrence several times per week. Pitted against the entire song group, 52.3% heard the din several times per week in contrast to 26.3% of all participants from the text group. The lowest figures from both treatment groups were found for a daily din occurrence, which was reported by only 8.8 % from the song group who had a din experience and 6.8% of the song group participants. Even fewer participants, i.e., 4.3% from

the text group who had a din experience and 2.6% from all text group participants reported on a daily occurrence.

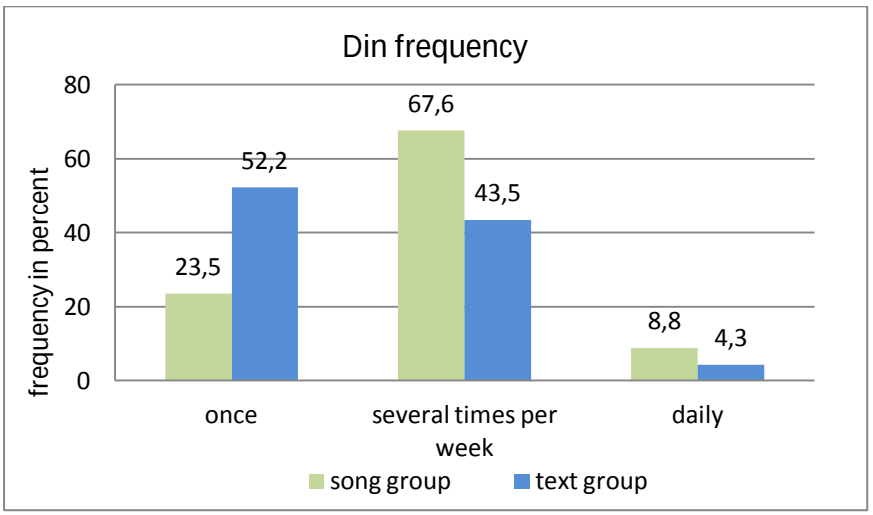

Figure 4: Din frequency in song (N=34) and text group (N=23)

Overall, these figures demonstrate that participants from the song group had more frequent din occurrences than the participants from the text group.

In order to test hypothesis 3, which stated that participants from the song group show higher and more frequent din occurrence, statistical tests needed to be conducted that would either support or reject the hypothesis. For this purpose, a one-way analysis of variance (ANOVA) was performed (see table 2).

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	0.6830	0.6830	3.78	0.0553
Error	80	14.4390	0.1805		
Corrected Total	81	15.1220			

Table 2: Results from one-way ANOVA on din occurrence between treatment groups

The T-Test Procedure						
Group	*N*	*Mean*	*Std Dev*	*Std Err*	*Minimum*	*Maximum*
S	44	0.8409	0.3700	0.0558	0	1.0000
T	38	0.6579	0.4808	0.0780	0	1.0000
Diff (1-2)		0.1830	0.4248	0.0941		

Effect size			
t-value	*DF*	*Cohen's d*	*r*
1.95	80	0.4360	0.2130

Table 4: Effect size (computed online via Becker 2000)

Method	*Variances*	*DF*	*t Value*	*Pr > |t|*
Pooled	Equal	80	1.95	0.0553
Satterthwaite	Unequal	68.996	1.91	0.0605

Equality of Variances				
Method	*Num DF*	*Den DF*	*F Value*	*Pr > F*
Folded F	37	43	1.69	0.0987

Table 3: Results from independent samples t-test on din occurrence between treatment groups

The first analysis was performed only on the data about whether participants experienced the occurrence of the din. First results showed no statistically significant difference between the groups, therefore, the confidence level, which is an indication of how certainly responses

are within a certain variation range (cf. Cohen et al. 2007: 103), was lowered from the standard level of 95% to a less stringent level of 90%. In other words, the confidence level indicates the amount of the population for which a certain parameter value holds true (cf. Wright 2003: 126). In this case, a significant difference (F=3.78; p=0.0553) between the two groups was found. The additional independent samples t-test (see table 3) allowed for a comparison of the means and showed that the song group reached higher levels of din occurrence (M=0.8409; SD=0.3700) than the text group (M=0.6579; SD=0.4808). Thus, statistical significance (t=1.95; p=0.0553) was reached although only for a confidence level of exactly 94.5% of the population.

Interestingly, Cohen et al. (2007: 520) cautiously advert to the danger of equating statistical significance with educational significance in their book on research methods in education. Since this is a research project conducted in the field of education and the significance level does not seem to deliver a satisfactory result as to whether support or not support hypothesis 2, another alternative suggested by these authors was employed. Especially in education research the measurement of the effect size has become a popular method to determine the effect of a certain treatment and is partly even preferred to statistical significance (cf. Coe 2000: 1; Cohen et al. 2007: 520; Wright 2003: 125). According to Cohen (1988: 25) an effect size of 0.5 can be considered a medium effect. This is similar to the classification Becker (2000) suggests, i.e., to consider Cohen's d values between 0.2 and 0.5 as medium effects. In Cohen et al. (2007: 521) a more stringent classification can be found adding a fourth category to Cohen's d and thus values between 0.21 and 0.5 are perceived as a modest effect. As can be seen in table 4, the value of Cohen's d (d=0.4360) indicates that the song treatment's effect on the din occurrence can be interpreted at least as a moderate, if not as a medium effect.

Regarding the analysis of the din frequency, results became more clear-cut. Again, a one-way ANOVA (see table 5) was performed which subsequently found a statistically significant difference (F=6.49; p=0.0128) between the means of din frequency of both treatment groups.

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	5.319436	5.319436	6.49	0.0128
Error	80	65.558612	0.819483		
Corrected Total	81	70.878049			

Table 5: Results from one-way ANOVA on din frequency between treatment groups

In order to allow for pair-wise comparisons and to identify which group reached significantly higher din frequencies an independent samples t-test was run. As table 6 illustrates, the mean frequencies of the song group were higher (M=1.4318; SD=0.9250) than those of the text group (M=0.9211; SD=0.8817) and under the assumption of equal variances (F=1.10; p=0.7699) this statistically significant difference was confirmed (t=2.55; p=0.0128). An additional evaluation of the effect size (see table 7) showed that the correlation between song treatment and din frequency had a moderate effect (d=0.5702; r=0.2742) following Cohen et al.'s (2007: 521) categorization and a large effect using the classification suggested by Becker (2000).

The T-Test Procedure						
Group	*N*	*Mean*	*Std Dev*	*Std Err*	*Minimum*	*Maximum*
S	44	1.4318	0.9250	0.1395	0	3.0000
T	38	0.9211	0.8817	0.1430	0	3.0000
Diff (1-2)		0.5108	0.9053	0.2005		

Effect size			
t-value	*DF*	*Cohen's d*	*r*
2.55	80	0.5702	0.2742

Table 7: Effect size (computed online via Becker 2000)

Method	*Variances*	*DF*	*t Value*	*Pr > |t|*
Pooled	Equal	80	2.55	0.0128
Satterthwaite	Unequal	79.199	2.56	0.0125

Equality of Variances				
Method	*Num DF*	*Den DF*	*F Value*	*Pr > F*
Folded F	43	37	1.10	0.7699

Table 6: Results from the independent samples t-test on din frequency between treatment groups

The testing of hypotheses 5 and 7 required the analysis of different groups, i.e., male and female were compared as well as the two school types were compared as regards the occurrence of the din in order to detect whether differences dependent on sex or school type exist. The one-way ANOVA (see table 8) found a statistically significant difference (F=5.62; p=0.0201) for the din occurrence between the sexes.

The ANOVA Procedure						LSD-test (t-test)			
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*	*t-Grouping*	*Mean*	*N*	*Sex*
Model	1	0.9931	0.9931	5.62	0.0201	A	0.85106	47	f
Error	80	14.1289	0.1766			B	0.62857	35	m
Corrected Total	81	15.1220							

Table 8: Results from one-way ANOVA and LSD-test (t-test) on din occurrence between sexes

In order to allow for pair-wise comparisons of the means between the treatment groups, Fisher's Least Significant Difference (LSD) test was used in the post-ANOVA part of the analysis. This test identifies which group is significantly different from the other. Since only two treatment groups were compared, SAS identified this setting (LSD) as a t-test for independent samples, which does however not provide as detailed information as a full independent samples t-test. SAS grouped the means of both treatment groups again as

significantly different (i.e., means with the same letter are not significantly different) and furthermore showed that the means of din occurrence of the female participants were higher (M=0.85106) than those of the male participants (M=0.62857). Concerning sex differences as regards din frequency, additional analyses were performed, which however found no statistically significant difference (F=2.71; p=0.1035). Nevertheless, means of the female participants (M=1.3404) were higher than those of the male participants (M=1.0000). Generally speaking, this shows that if the din is experienced, the frequency seemed to be the same for male and female participants, regardless of the input format.

Apart from sex differences, differences between the two school types were also of interest for the research on the din. In fact, hypothesis 7 implied that din occurrence was not different among participants coming from the two different school types. Correspondingly, the one-way ANOVA did not find a significant difference (F=0.58; p=0.4498) between the means of din occurrence of the participants from the two schools (AHS: M=0.7907; HS: M=0.7195). Likewise, din frequency, which was again additionally tested, was not found to be significantly different (F=0.38; p=0.5406) between the schools (AHS: M=1.2558; HS: M=1.1282).

The second last item of the questionnaire tried to reveal which activities accompanied or triggered the din. Unfortunately, this item elicited many unspecified and therefore irrelevant answers[32] and thus only a limited variety of activities were mentioned. Apart from the large number of unspecified answers (N=26), mainly activities (N=17) such as learning, doing homework, everyday activities, doing sports, and being on the bus, as well as simply doing nothing (N=14) were mentioned. In some cases (N=6) remembering the task (immediate recall test) triggered a din as well as the story of the song in some cases activated a din (N=2).

The last item attempted to elicit information on the controllability of the din. Again, only those participants who had a din experience responded to this item, which accounts for the diminished treatment group sizes. Unfortunately, one participant from the song group failed to respond to this item so only 33 participants from the song group with a din experience remained for this analysis. Like in the previous graphs, for reasons of comparability, the respective percentage scores were computed. In general, figure 5 shows

[32] Many participants indicated that at the time they heard the din, they were singing or humming the song along with the din, but did not mention what kind of activity they were actually carrying out at the moment apart from humming or singing.

the two treatment groups and their ability to stop the din. Those participants who reported that they could not stop the din at all were pooled in the category “unstoppable” (red). The category which subsumes all participants who could stop the din, is further divided into those who could stop it successfully (green) and those where the din returned although having stopped it previously (orange). Clearly, a large majority of the participants from the song group with a din experience, i.e., 60.6%, were unable to stop the song playing in their heads. In the text group comparatively fewer participants, i.e., 43.5%, could not stop the text repeating in their heads.

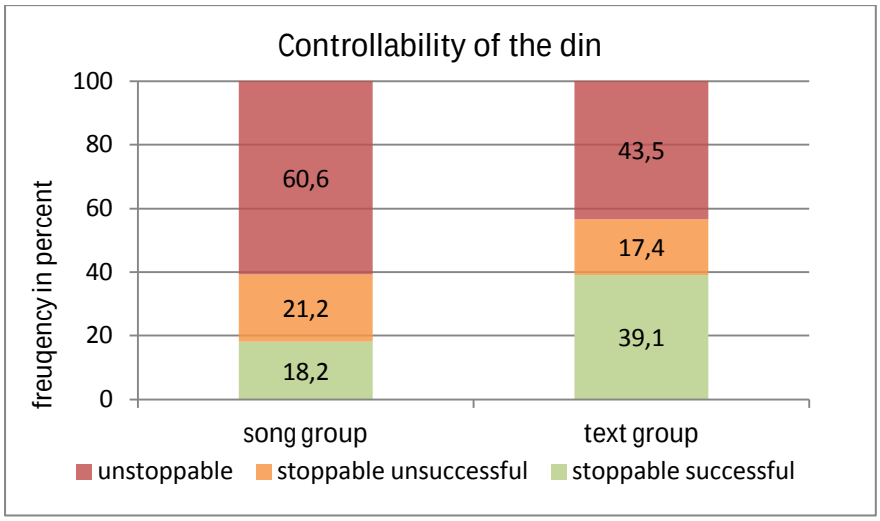

Figure 5: Controllability of the din by the song (N=33) and text group (N=23)

Combining the categories of participants who were able to stop the din, 39.4% of the participants with din experience from the song group and 56.5% of the participants with din experience from the text group seemed to be able to control the din at least to some extent. Interestingly, only 18.2% were indeed able to stop the din without experiencing its recurrence. Hence, a greater number of participants, i.e., 21.2%, was in fact unsuccessful in controlling and completely stopping the mental playback. The text group reported a greater success overall as 39.1% of the participants successfully stopped the din and only 17.4% could stop it, but also experienced its return. In this sense, the combination of the category “unstoppable” with the category “stoppable unsuccessful” appears more meaningful for interpretations. Hence, it can be eventually remarked that in the song group only 18.2% of the participants with a din experience successfully controlled and silenced the din, while 81.8% were at least partly unsuccessful. According to this interpretation, the text group was far more successful as 39.1% could in fact silence the din, while 60.9% had problems with it or were completely powerless.

6.1.1 Analyses and results of the quasi-experiment

The analysis of the data gathered from the quasi-experiment was of an entirely quantitative nature. The pretest-posttest design of this quasi-experiment has a major advantage over the posttest-only design in Smith Salcedo's (2002) study as already indicated in previous sections. This advantage lies primarily in the fact that the pretest facilitates the reduction of error variance, which renders this testing design more powerful. Specifically, the measurement of differences between pre- and posttest(s) and thus the measurement of change constitute its power (cf. Dimitrov and Rumrill 2003: 159f.). However, measurement of change is not as straightforward as it seems and for its analysis several methods are proposed (cf. e.g. Becker 2000; Dallal 2005; Dimitrov and Rumrill 2003). The most common method for the measurement of change is to evaluate change scores, also referred to as gain scores, which are computed by subtracting each participant's pretest scores from his or her posttest scores (cf. Becker 2000; Dimitrov and Rumrill 2003: 161). The use of gain scores, however, has also been criticized as in case of equal variances of both pre- and posttest scores gain scores are perceived as being less reliable (cf. Dimitrov and Rumrill 2003: 161). However, Dimitrov and Rumrill (2003: 161) assert that this holds true only for a minority of testing results and therefore emphasize that the reliability of change scores is usually high. As regards the choice of statistical procedures, for the use of gain scores several tests are suggested such as the t-test of the differences, a one-way ANOVA of the differences, a repeated measures ANOVA or an analysis of covariance (ANCOVA) (cf. Becker 2000; Dallal 2005; Dimitrov and Rumrill 2003: 161f.). In order to eliminate any negative influences on the reliability of the scores, one-way ANOVAs were performed on the means of both posttest and gain scores in separate analyses. Furthermore, in the case of this study, it might also be annotated that the number of gain scores might be limited when pretest scores were high which could distort results. Where necessary, LSD-tests and independent samples t-tests were run to obtain more detailed information on the data.

For the purpose of testing hypothesis 1, a one-way ANOVA was performed on the mean recall scores of the immediate recall test (= first post test). Results (see table 9) revealed that although the mean scores of the song group were higher (M=12.364) than the mean scores of the text group (M=11.382) statistical significance of the differences could not be reached (F=0.65; p=0.4211).

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	19.6651	19.6651	0.65	0.4211
Error	80	2405.3989	30.0675		
Corrected Total	81	2425.0640			

Table 9: Results from one-way ANOVA on mean immediate recall scores between treatment groups

Considering the gain scores between the pre- and the first posttest, similar results were found. The one-way ANOVA again showed that no statistically significant difference (F=0.84; p=0.3611) exists between the two treatment groups (see table 10). The mean scores of the text group were even slightly higher (M=10.158) than those of the song group (M=9.227). As already discussed in the previous section, seven participants from the song group already knew the song before receiving the treatment.

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	17.6591	17.6591	0.84	0.3611
Error	80	1674.7799	20.9347		
Corrected Total	81	1692.4390			

Table 10: Results from one-way ANOVA on mean gain scores of the first posttest between treatment groups

For that reason a further ANOVA on gain scores was run excluding these seven participants. Unfortunately, the picture remained the same (see table 11) as no significant difference was detected (F=0.32; p=0.5712) and the mean scores of the text group (M=10.158) were for a second time slightly higher than those of the song group (M=9.541).

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	7.1448	7.1448	0.32	0.5712
Error	73	1611.7418	22.0787		
Corrected Total	74	1618.8867			

Table 11: Results from one-way ANOVA on mean gain scores of the first posttest between treatment groups excluding participants familiar with the song

The second hypothesis concerned the delayed recall scores, which were estimated to be higher in the song group than in the text group. However, before reporting on any results based on delayed recall scores, it needs to be noted that due to the fact that some participants were absent on the day of the second posttest, data was gathered from a slightly reduced number of participants. In fact, the song group counted 41 participants, while the text group counted 36 participants. Consequently, the analyses excluding those participants who knew the song before, which once again reduced the song group to 34

participants. The one-way ANOVA performed on the mean delayed recall scores found no statistical significance (F=3.17; p=0.0790) within the confidence level of 95%, however, lowering this again to 90%, the results can be perceived as significant with a significance level of 92.1% (see table 12).

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	110.7306	110.7306	3.17	0.0790
Error	75	2618.1265	34.9084		
Corrected Total	76	2728.8571			

Table 12: Results from one-way ANOVA on mean delayed recall scores between treatment groups

Since the analysis of delayed recall scores seems to almost reach significance, an independent samples t-test was performed in order to obtain more information and data. As observable in table 13, equality of variances was significantly assured (F=1.33; p=0.3872) and thus the significance level of 92.1% was confirmed (t=1.78; p=0.0790). Nevertheless, the mean scores of the song group were higher (M=11.1951; SD=6.2878) than those of the text group (M=8.7917; SD=5.4424) as well as the maximum scores reached by the song group (Max=21) were higher than those reached by the text group (Max=19.5).

The T-Test Procedure						
Group	*N*	*Mean*	*Std Dev*	*Std Err*	*Minimum*	*Maximum*
S	41	11.1951	6.2878	0.9820	0	21.0000
T	36	8.7917	5.4424	0.9071	0	19.5000
Diff (1-2)		2.4035	5.9083	1.3495		

Method	*Variances*	*DF*	*t Value*	*Pr > |t|*
Pooled	Equal	75	1.78	0.0790
Satterthwaite	Unequal	74.988	1.80	0.0762

Equality of Variances				
Method	*Num DF*	*Den DF*	*F Value*	*Pr > F*
Folded F	40	35	1.33	0.3872

Table 13: Results from independent samples t-test on mean delayed recall scores between treatment groups.

Effect size			
t-value	*DF*	*Cohen's d*	*r*
1.78	75	0.4111	0.2013

Table 14: Effect size (computed online via Becker 2000)

Hence, the testing of this hypothesis again does not seem to yield conclusive results in terms of significance. For this reason, the alternative method of measuring the effect size was used again. Similarly, the effect size (d=0.4111; r=0.2013) of the song treatment in this study can be categorized in the worst case as moderate and in the best case as medium (see table 14).

Taking into consideration the mean gain scores of the second posttest, the positive picture drawn in this first analysis can no longer be upheld. Although the song group still reached slightly higher mean scores (M=7.878) than the text group (M=7.528), the one-way ANOVA clearly indicates that there is no significant difference (F=0.09; p=0.7648) between the two treatment groups as regards gain scores in the delayed recall test (see table 15). When excluding participants familiar with the song in an additional analysis (see table 16),

the difference between the mean gain scores of the song group (M=8.397) and the text group (M=7.528) became larger, even though a significant difference was again not reached (F=0.32; p=0.5712).

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	2.3518	2.3518	0.09	0.7648
Error	75	1956.3625	26.0848		
Corrected Total	76	1958.7143			

Table 15: Results from one-way ANOVA on mean gain scores of the second posttest between treatment groups

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	7.1448	7.1448	0.32	0.5712
Error	73	1611.7418	22.0787		
Corrected Total	74	1618.886667			

Table 16: Results from one-way ANOVA on mean gain scores of the second posttest between treatment groups excluding participants familiar with the song.

Since significance levels for the analyses based on the mean gain scores were extremely low, no further analyses, such as t-tests or effect size computations were performed.

Research question 4 was interested in sex differences; however, hypothesis 4 did not expect them to have an influence on text recall performances. In the first analysis only immediate recall scores (= first posttest) were considered for the one-way ANOVA. Surprisingly, the mean scores of all female participants appeared to be higher (M=13.011) than those of their male counterparts (M=10.429) and thus a statistically significant difference could be found (F=4.67; p=0.0337) as can be seen in table 17. Table 18 displays that when considering mean gain scores only (M_f=10.106; M_m=9.057), sex does no longer constitute a dividing variable as no significant difference can be reported (F=1.06; p=0.3068).

The ANOVA Procedure						LSD-test (t-test)			
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*	*t-Grouping*	*Mean*	*N*	*Sex*
Model	1	133.7479	133.7479	4.67	0.0337	A	13.011	47	f
Error	80	2291.3161	28.6415			B	10.429	35	m
Corrected Total	81	2425.0640							

Table 17: Results from ANOVA and LSD-test (t-test) on mean immediate recall scores between sexes

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	22.0852	22.0852	1.06	0.3068
Error	80	1670.3538	20.8794		
Corrected Total	81	1692.4390			

Table 18: Results from ANOVA on mean gain scores of the first posttest between sexes

The outcomes of the ANOVA on delayed recall scores (= second posttest) were almost similar to those reported on immediate recall scores. Hence, when taking into account total delayed recall score means (see table 19), again, female participants showed higher means (M=11.744) than male participants (M=7.956) and a statistically significant difference between the sexes could be found (F=8.32; p=0.0051). Likewise, the ANOVA performed on gain score means (see table 20) did no longer find a statistically significant difference (F=3.33; p=0.0718) between the two sexes' performances in the delayed recall test (M_f=8.640; M_m=6.544). However, lowering confidence levels to 90%, significant difference become reportable as they still hold true for 92,8% of the population.

The ANOVA Procedure						LSD-test (t-test)			
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*	*t-Grouping*	*Mean*	*N*	*Sex*
Model	1	272.4873	272.4873	8.32	0.0051	A	11.744	47	f
Error	75	2456.3699	32.7516			B	7.956	35	m
Corrected Total	76	2728.8571							

Table 19: Results from ANOVA and LSD-test (t-test) on mean delayed recall scores between sexes

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	83.3677	83.3677	3.33	0.0718
Error	75	1875.3466	25.0046		
Corrected Total	76	1958.7143			

Table 20: Results from ANOVA on mean gain scores of the second posttest between sexes

Investigating differences in the performances of the participants regarding the school type they are attending, a one-way ANOVA on immediate recall scores (= first posttest) revealed that undoubtedly significant differences did exist (F=67.14; p < 0.0001). The LSD-test (t-test) (see table 21) repeatedly confirmed the significance in difference and furthermore showed that the mean immediate recall scores of participants attending the AHS were almost twice as high (M=15.4070) as those of participants attending the HS (M=8.0513).

The ANOVA Procedure						LSD-test (t-test)			
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*	*t-Grouping*	*Mean*	*N*	*School*
Model	1	1106.5387	1106.5387	67.14	<.0001	A	15.4070	43	AHS
Error	80	1318.5253	16.4816			B	8.0513	39	HS
Corrected Total	81	2425.0640							

Table 21: Results from ANOVA and LSD-test (t-test) on mean immediate recall scores between school types

As regards differences that relate back to school type, the one-way ANOVA and the LSD-test (t-test) (see table 22) on mean gain scores further confirmed the significant difference

(F=25.29; p < 0.0001) between the AHS (M=11.7790) and the HS (M=7.3205), although the gain score means differed not as widely as the total mean immediate recall scores.

The ANOVA Procedure						LSD-test (t-test)			
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*	*t-Grouping*	*Mean*	*N*	*School*
Model	1	406.5443	406.5443	25.29	<.0001	A	11.7791	43	AHS
Error	80	1285.8948	16.0737			B	7.3205	39	HS
Corrected Total	81	1692.4390							

Table 22: Results from ANOVA and LSD-test (t-test) on mean gain scores of the first posttest between school types

Analyses of delayed recall performance differences between the school types revealed results similar to those found on sex and school type differences when analyzing immediate recall performances. Hence, both ANOVAs on delayed recall scores (see table 23) and the respective gain scores (see table 24) indicated a significant difference (F=51.67; p < 0.0001; F=19.89; p < 0.0001).

The ANOVA Procedure						LSD-test (t-test)			
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*	*t-Grouping*	*Mean*	*N*	*School*
Model	1	1113.1018	1113.1018	51.67	<.0001	A	13.634	41	AHS
Error	75	1615.7552	21.5434			B	6.014	36	HS
Corrected Total	76	2728.8571							

Table 23: Results from ANOVA and LSD-test (t-test) on mean delayed recall scores between school types

The ANOVA Procedure						LSD-test (t-test)			
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*	*t-Grouping*	*Mean*	*N*	*School*
Model	1	410.5740	410.5740	19.89	<.0001	A	9.878	41	AHS
Error	75	1548.1402	20.6419			B	5.250	36	HS
Corrected Total	76	1958.7142							

Table 24: Results from ANOVA and LSD-test (t-test) on mean gain scores of the second posttest between school types

The LSD-test (t-test) confirmed this significant difference and additionally revealed that the mean delayed recall scores of AHS participants were even more than twice as high (M=13.634) as those of HS participants (M=6.014). However, the LSD-test (t-test) on the gain scores showed that AHS participants' means (M=9.878) were still remarkably higher, but no longer twice as high as HS participants' means (M=5.250). It has to be remarked that differences between the school types already existed in the pretest, where the means of AHS participants (M=3.628) were considerably higher than those of HS participants (M=0.731).

6.1.2 Combined analyses and results

This section reports on results that were gained by combining data from the survey and the quasi-experiment in order to test the more specified hypotheses.

The first hypothesis to test was hypothesis 8, which speculated on a positive effect of a positive appraisal of either song or text on immediate and delayed recall performances. The one-way ANOVA on immediate recall scores (see table 25), however did not find a significant difference (F=0.14; p=0.7141) between those participants who liked the song or text and those who did not. Surprisingly, the mean scores of the former were even slightly lower (M=11.812) compared to the latter group (M=12.423). A further one-way ANOVA on the gain scores (see table 26) did not yield different results as again no significant difference (F=1.58; p=0.2123) between the mean gain scores (like: M=9.384; dislike: M=11.115) was found.

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	4.0902	4.0902	0.14	0.7141
Error	80	2420.9738	30.2622		
Corrected Total	81	2425.0640			

Table 25: Results from ANOVA on mean immediate recall scores and form of appraisal

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	32.7896	32.7896	1.58	0.2123
Error	80	1659.6494	20.7456		
Corrected Total	81	1692.4390			

Table 26: Results from ANOVA on mean gain scores of the first posttest and form of appraisal

The results from the one-way ANOVA on the mean delayed recall scores (see table 27) and respective mean gain scores (see table 28) closely resembled those found for immediate recall scores. Correspondingly, mean scores and gain scores of participants who liked the song or text (M=9.992; M=7.422) were not significantly different (F=0.07; p=0.7987; F=1.26; p=0.2649), but slightly lower than the mean scores and gain scores of participants who reported a dislike (M=10.462; M=9.154).

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	2.3803	2.3803	0.07	0.7987
Error	75	2726.4769	36.3530		
Corrected Total	76	2728.8571			

Table 27: Results from ANOVA on mean delayed recall scores and form of appraisal

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	32.4126	32.4126	1.26	0.2649
Error	75	1926.3017	25.6840		
Corrected Total	76	1958.7143			

Table 28: Results from ANOVA on mean gain scores of the second posttest and form of appraisal

Not only were the occurrence and frequency of the din of interest for this study, but also the effect it had on the recall performances. Hypothesis 9 addressed this correlation and expected participants who experienced the din to achieve significantly higher recall scores. A one-way ANOVA on the mean immediate recall scores (see table 29) was conducted, which, however, did not indicate a significant difference (F=0.99; p=0.3218) between the mean scores of those participants who experienced the din (M=12.474) and those who did not (M=11.100), although participants with a din experience still had slightly higher immediate recall scores than those without.

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	27.9375	27.9375	0.99	0.3218
Error	75	2106.5105	28.0868		
Corrected Total	76	2134.4481			

Table 29: Results from ANOVA on mean immediate recall scores and din occurrence

Examining the effect of the din on the basis of the mean gain scores only, again no significant difference (F=0.09; p=0.7614) could be identified with the use of a one-way ANOVA (see table 30). When performing a LSD-test (t-test), it could be seen that the difference between the mean gain scores of participants who had a din (M=9.851) and those who did not have one (M=9.500) was considerably reduced.

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	1.8227	1.8227	0.09	0.7614
Error	75	1471.4825	19.6198		
Corrected Total	76	1473.3052			

Table 30: Results from ANOVA on mean gain scores of the first posttest and din occurrence

Unlike in previous analyses, the analysis on the effect of the din on delayed recall scores clearly turned the tables. The one-way ANOVA on delayed recall scores (see table 31) indicated a clear, significant difference (F=6.17; p=0.0152) between participants with a din experience and those without.

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	207.5168	207.51688	6.17	0.0152
Error	75	2521.3404	33.6179		
Corrected Total	76	2728.8571			

Table 31: Results from ANOVA on mean delayed recall scores and din occurrence

The additional performance of an independent samples t-test (see table 32), under the assumption that variances were equal (F=1.31; p=0.5232), revealed that the mean scores of those participants who experienced the din were significantly (t=2.48; p=0.0152) higher (M=11.0439; SD=5.9808) than the mean scores of participants without a din experience (M=7.3000; SD=5.2224). Moreover, the maximum scores of participants with a din experience were higher (Max=21.0000). In addition to the testing of the hypothesis on the basis of significance levels, the effect size (see table 33) was computed and showed that the effect (d=0.5727; r= 0.2753) of a din experience on delayed recall scores can be interpreted as moderate (cf. Cohen et al. 2007: 521) to strong (cf. Becker 2000).

The T-Test Procedure						
din	*N*	*Mean*	*Std Dev*	*Std Err*	*Minimum*	*Maximum*
yes	57	11.0439	5.9808	0.7922	0	21.0000
no	20	7.3000	5.2224	1.1678	0	20.0000
Diff (1-2)		3.7439	5.7981	1.5069		

Method	*Variances*	*DF*	*t Value*	*Pr > |t|*
Pooled	Equal	75	2.48	0.0152
Satterthwaite	Unequal	37.795	2.65	0.0116

Equality of Variances				
Method	*Num DF*	*Den DF*	*F Value*	*Pr > F*
Folded F	56	19	1.31	0.5232

Table 32: Results from independent samples t-test on mean delayed recall scores and din occurrence

Effect size			
t-value	*DF*	*Cohen's d*	*r*
2.48	75	0.5727	0.2753

Table 33: Effect size (computed online via Becker 2000)

Yet again, even the one-way ANOVA on the mean gain scores (see table 34) clearly confirmed the existence of a statistically significant difference (F=4.45; p=0.0383) between participants with and participants without a din experience as regards delayed recall scores.

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	109.6195	109.6195	4.45	0.0383
Error	75	1849.0947	24.6546		
Corrected Total	76	1958.7143			

Table 34: Results from ANOVA on mean gain scores of the second posttest and din occurrence

Likewise, the supplementary independent samples t-test (see table 35) showed similar results in that mean gain scores of participants with a din experience were higher (M=8.4211; SD=5.3132) than those of participants who did not have a din experience (M=5.7000; SD=3.7571). Given equality of variances (F=2.00; p=0.0968), statistical

significance was thus confirmed also through the t-test (t=2.11; p=0.0383). As in the previous analysis, the effect size (see table 36) was additionally computed for this analysis (d=0.4873; r=0.2367) and revealed that a din experience had a modest (cf. Cohen et al. 2007: 521) to medium (cf. Becker 2000) effect on the gain scores in the delayed recall test.

The T-Test Procedure						
din	*N*	*Mean*	*Std Dev*	*Std Err*	*Minimum*	*Maximum*
yes	57	8.4211	5.3132	0.7038	-1.0000	19.0000
no	20	5.7000	3.7571	0.8401	0	13.0000
Diff (1-2)		2.7211	4.9653	1.2905		

Effect size			
t-value	*DF*	*Cohen's d*	*r*
2.11	75	0.4873	0.2367

Table 36: Effect size (computed online via Becker 2000)

Method	*Variances*	*DF*	*t Value*	*Pr > |t|*
Pooled	Equal	75	2.11	0.0383
Satterthwaite	Unequal	47.145	2.48	0.0166

Equality of Variances				
Method	*Num DF*	*Den DF*	*F Value*	*Pr > F*
Folded F	56	19	2.00	0.0968

Table 35: Results from independent samples t-test on mean gain scores of the second posttest and din occurrence

Finally, hypothesis 10 was interested in the very small group of participants (N=7) who had already been familiar with the song before the actual treatment phase of the quasi-experiment took place. It was hypothesized that these participants would achieve higher recall scores compared to participants to whom the song or text was new. As already indicated in previous sections, this hypothesis is less concerned with the study's core topic, but rather tries to measure the influence of an incidental out-of-school-context learning through songs. Given that pretest scores of those participants were considerably high (M=11.5714), the use of a gain score analysis did not yield a statistically significant difference neither for the immediate recall test (F=1.93; p=0.1694) nor for the delayed recall test (F=1.67; p=0.01996). Due to the fact that the maximum score to be reached was 21 points the maximum mean gain scores of those participants familiar with the song were consequently severely limited. For this reason, merely total recall scores were used to test hypothesis 10. The one-way ANOVA performed on the total immediate recall scores (see table 37) showed a clear statistically significant difference (F=16.25; p=0.0001) between participants familiar and participants unfamiliar with the song or text. Results from the independent samples t-test (see table 38) additionally confirmed the statistically significant difference (t=9.79; p=0.0001) given that the variances of the two groups were unequal this time (F=13.20; p=0.0035). As can be seen in the tables below, the mean scores of those participants who reported familiarity were clearly higher (M=19.1429; SD=1.4351) than those of participants who reported unfamiliarity (M=11.2333; SD=5.2145). Furthermore, even though the maximum scores were equally high in both groups, i.e., 21 points, the

minimum scores differed largely. Thus, participants who knew the song reached a minimum score of 17 points, whereas some participants who did not know the song or text also showed no improvement at all after the treatment (Min=0).

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	380.1052	380.1052	16.25	0.0001
Error	75	1754.3429	23.3912		
Corrected Total	76	2134.4480			

Table 37: Results from ANOVA on mean immediate recall scores between familiar and non-familiar participants

The T-Test Procedure						
Familiar	*N*	*Mean*	*Std Dev*	*Std Err*	*Minimum*	*Maximum*
yes	7	19.1429	1.4351	0.5424	17.0000	21.0000
no	75	11.2333	5.2145	0.6021	0	21.0000
Diff (1-2)		7.9095	5.0306	1.9881		

Effect size			
t-value	*DF*	*Cohen's d*	*r*
9.79	26.62	3.7950	0.8847

Table 39: Effect size (computed online via Becker 2000)

Method	*Variances*	*DF*	*t Value*	*Pr > |t|*
Pooled	Equal	80	3.98	0.0002
Satterthwaite	Unequal	26.62	9.76	<.0001

Equality of Variances				
Method	*Num DF*	*Den DF*	*F Value*	*Pr > F*
Folded F	74	6	13.20	0.0035

Table 38: Results from independent samples t-test on mean immediate recall scores between familiar and non-familiar participants

Correspondingly, the computation of the effect size (see table 39) resulted in extraordinarily high values (d=3.7950; r=0.8847) and thus rendered the effect of familiarity on immediate recall test performances as large/strong (cf. Becker 2000; Cohen et al. 2007: 521).

Regarding the analysis of delayed recall scores, the one-way ANOVA (see table 40) also detected statistically significant differences between the two groups' performance scores (F=11.47; p=0.0011). As shown in table 41 below, the independent samples t-test found that also for the delayed recall scores, the means of those participants who knew the song (M=16.9286; SD=4.4947) were significantly higher (t=3.39; p=0.0011), given that variances were equal (F=1.61; p=0.5740), than the means of the participants who did not know the song (M=9.3857; SD=5.7048). Again, maximum scores were equally high, whereas minimum scores were 10 points in the group familiar with the song and 0 points in the group not familiar with the song. Having calculated the effect size (see table 42), it can be said that the values were almost as high as for immediate recall scores (d=7829; r=0.3645) and thus indicate that the effect of familiarity on delayed recall scores is moderate (cf. Cohen et al. 2007: 521) to large (cf. Becker 2000).

The ANOVA Procedure					
Source	*DF*	*Sum of Squares*	*Mean Square*	*F Value*	*Pr > F*
Model	1	362.0571	362.0571	11.47	0.0011
Error	75	2366.8000	31.5573		
Corrected Total	76	2728.8571			

Table 40: Results from ANOVA on mean delayed recall scores between familiar and non-familiar participants

The T-Test Procedure						
Familiarity	*N*	*Mean*	*Std Dev*	*Std Err*	*Minimum*	*Maximum*
yes	7	16.9286	4.4947	1.6988	10.0000	21.0000
no	70	9.3857	5.7048	0.6819	0	21.0000
Diff (1-2)		7.5429	5.6176	2.2269		

Effect size			
t-value	*DF*	*Cohen's d*	*r*
3.39	75	0.7829	0.3645

Table 42: Effect size (computed online via Becker 2000)

Method	*Variances*	*DF*	*t Value*	*Pr > |t|*
Pooled	Equal	75	3.39	0.0011
Satterthwaite	Unequal	8.0706	4.12	0.0033

Equality of Variances				
Method	*Num DF*	*Den DF*	*F Value*	*Pr > F*
Folded F	69	6	1.61	0.5740

Table 41: Results from independent samples t-test on mean delayed recall scores between familiar and non-familiar participants

6.2 General discussion of the study

Having presented the results of this study in the previous subchapter, these will now be discussed in relation to the corresponding hypotheses, findings from similar studies, and concepts introduced in the first part of this thesis. Moreover, possible explanations for the findings will be discussed. The second part identifies some limitations to the study and provides some suggestions for future research in the field. The last part tries to embed the overall findings of the study in the larger context of FLL and teaching and briefly discusses possible implications.

6.2.1 Discussion of the results

The aim of this study was to investigate the effect of a pop song on the recall of the text of the song. The first research hypothesis in this context stated that listening to a text in the form of a song would lead to higher immediate recall scores than listening to a spoken recording of it. Results showed that the song group outperformed the text group only when analyzing total immediate recall scores (M_S=12.364; M_T=11.382), but achieved slightly lower scores when analyzing gain scores. None of the analyses conducted on immediate recall scores and gain scores reached statistical significance (total recall scores: p=0.4211; gain scores: p=0.3611; gain scores without participants being familiar with the song: p=0.5712).

Consequently, hypothesis 1 is not supported by these data. The results found for hypothesis 1 resemble those of Rainy and Larsen (2002: 181), who also did not find significant differences for immediate recall performances. In contrast, Smith Salcedo's (2002: 106) study found better recall performances for all songs in the song group for immediate recall; however, statistical significance was only reached for two out of three songs. A possible explanation for having to reject the first hypothesis might be that not all participants were sensitive to music, which might also be related to issues of previous musical training and experience, and thus not all participants could immediately take advantage of this form of input. The most severe limitation to this study is that it is based on the study of the effect of one song only and therefore comparisons of this effect are unfortunately impossible. Hence, data on a different song in the same testing format might result in different outcomes regarding immediate text recall performances. Another possible explanation might also be that the spoken recording of the lyrics turned out to be very emotional and listening to it to some extent resembled overhearing a soliloquy, which was reported as very touching by some participants in personal conversations after the treatment phase. Hence, it can be argued that the quality of the spoken recording has also an impact on the performance in the immediate recall test and thus might led to similarly high scores and even higher gain scores than the song itself. A further reason might also be that some participants possibly experienced the music itself as distracting.

Similarly, research hypothesis 2 expected a positive effect of the song treatment compared to the text treatment on delayed recall scores, which were obtained two weeks after the actual treatment. Interestingly, the results found show the matter in a different light at least as regards delayed recall scores. In all analyses conducted on delayed recall scores and gain scores the song group outperformed the text group (total scores: M_S=11.1951; M_T=8.7917; gain scores: M_S=7.878; M_T=7.528; gain scores without participants familiar with the song: M_S=8.397; M_T=7.528). However, gain scores analyses did not reach statistical significance, while the analysis of the total recall scores reached significance (p=0.079) when lowering confidence levels (=92.1%). As Cohen et al. (2007: 520) strongly advise against inferring that in such cases no difference exits, the effect size was used to determine the effect of the song treatment on the delayed recall scores, which showed to be moderate to medium. In this respect, a conclusion is hard to obtain as the effect can neither be denied nor is it totally confirmed by the gain score analysis. Additional studies

investigating this effect are clearly needed in the future. Interestingly, results on delayed text recall performances also differed in previous studies as Smith Salcedo (2002: 106) did not find significant differences, whereas Rainey and Larsen (2002: 184) did. Again, song number can be identified as a limitation as well as the quality of the spoken recording might had an influence also on delayed recall scores. Nonetheless, the fact that the delayed recall scores reached closer to statistical significance might allude to a positive effect of concepts introduced in chapter 2.3.2 such as the mnemonic nature of music, priming, and INMI (i.e., the din) in particular on delayed text recall scores and thus on long-term memory. Addressing issues like these leads directly to the next research hypothesis.

Indeed, the third research hypothesis presupposed that participants of the song group would experience higher din occurrences and additionally also more frequent din experiences than participants of the text group. According to the frequency count conducted from the survey, in the song group more participants reported a din occurrence (82.9%) compared to the text group (63.9%). These findings were confirmed by the statistical analysis, which found at a slightly lowered confidence level (94.5%) that the din was significantly more often experienced ($p=0.053$) when exposed to the song treatment. The effect of the song treatment on the din occurrence was found to be moderate to medium. Additionally, the frequency of the occurrence of the din was found to be significantly higher in the song group ($p=0.0128$) and 67% of the participants who experienced a din reported of an occurrence several times per week, while 8% even heard it daily. Regarding din frequency, the effect of the song was identified as moderate to large. As a result, hypothesis 3 can be supported by the data of this study. Compared to the findings of Smith Salcedo (2002: 104) the din occurrences in this study were higher in both groups than in Smith Salcedo's study in which only 33% of the text group and 67% of the song group reported a din occurrence. Partly analogous to Smith Salcedo's (2002: 119) study in which participants mostly experienced the din during "mentally mechanical activities" in which the brain is in a relaxed state, participants in this study experienced the din most frequently during activities (N=17) such as sports, everyday activities, but also during doing homework and learning, closely followed by the totally relaxed state of doing nothing (N=14). As an addition to Smith Salcedo's (2002) study, this study also included the controllability of the din. Overall, 81.8% of the participants of the song group with a din experience reported on the uncontrollability of it and 60.9% of the text group participants with din experience could not control it. These

results clearly show that the din is more effectively triggered by a song compared to a text and is more persistent and irrepressible in the form of a song. These findings thus support previous studies on INMI in which music was also found to be the main trigger for INMI (Likkanen 2008: 410) and also represented the form of INMI that is the hardest to control especially for people to whom music is important (Beaman and Williams 2010: 642).

Research question 4 was interested in the existence of sex differences. In this context, hypothesis 4 did not expect a difference in immediate and delayed recall scores with regard to sex. Interestingly, the reverse was revealed as in all of the analyses of immediate and delayed recall scores and gain scores female participants outperformed male participants. In addition, statistical significance was reached in the analyses of total immediate and delayed recall scores, while the analyses of gain scores from the first posttest (= immediate recall) did not find statistical significance and the gain score analysis of the delayed recall scores reached a significance level of 92.8% (p=0.0718). Hypothesis 4 can thus not be confirmed as sex differences are present. A potential reason for this difference might be that the testing format of gap-filling came more natural to the female participants. Turning to the investigation of sex differences regarding din occurrence and frequency, hypothesis 5 did not anticipate any difference. Interestingly, female participants' din occurrence was significantly higher (p=0.0201) than those of the male participants; however, the frequency of the occurrence did not differ significantly (p=0.1035) although the female participants' means were higher. In this respect, hypothesis 4 cannot be supported by the data, while for hypothesis 5 only the din frequency hypothesis can be confirmed. Regarding the din occurrence, clearly sex differences exist. The most important observation that can be made from the results of hypotheses 4 and 5 is that the effect of the din is perfectly traceable. Given that female participants not only seem to achieve higher immediate and delayed recall scores, but also report significantly higher din occurrences and higher means of din frequency, the positive effect the din has on recall performance becomes evident. Interestingly, Likkanen's (2008: 410) study on INMI also found that women experience INMI more frequently, while Beaman and Williams (2010: 647) could not report a difference between the sexes in their study. Obviously, in order to draw reliable conclusions on this research question, further studies will be needed.

Research question 5 was similar to research question 4; however, the focus was on differences concerning the different school types. Although hypothesis 6 did not suppose

school type differences to occur, significant differences were detected for immediate and delayed recall scores and gain scores, as participants attending the AHS significantly outperformed the participants from the HS. This might partly also be due to the fact that both HS classes were designated integrated classes, where the participants with special needs were probably unable to cope with the procedure and the testing. The exclusion of the data of these participants was neglected in order not to diminish the number of total participants. Additionally, their test papers were not labeled respectively so they could not be identified later in the analyses. Clearly, this represents a drawback of the study. Apart from that, AHS participants could have had a higher language competence in general, which was reflected in the higher pretest results they achieved compared to the HS participants. Overall, hypothesis 6 cannot be confirmed by the data. Continuing with hypothesis 7, which stated that there would be no significant differences between the school types regarding din occurrence and frequency, no statistical differences were detected indeed. Given that the occurrence of the din is not dependent on school type and potentially also not on language competence, which might be higher in the AHS according to the overall better recall results, renders the din a viable facilitator of verbal recall, regardless of language competence. Overall, hypothesis 7 can be fully supported.

The theoretical basis of hypothesis 8 was that positive appraisal of a certain input can lead to more motivated learners, which in turn could be reflected in higher recall scores. The analysis of song and text appraisal primarily shows that the song was liked by 90.9% of all participants in the song group and the text was like by 76.3% of all participants in the text group. For this reason, the hypothesis expected the immediate and delayed recall scores of those participants who liked the song or the text to be higher than those of participants who disliked it. However, results could not confirm this hypothesis as none of the analyses detected a significant difference. The mean scores even showed that participants who positively appraised the song or text performed worse on immediate and delayed recall tests than those who reported a dislike for the song. In any case, a positive correlation of positive input appraisal, motivation, and enhanced learning could not be proven with the available data and therefore hypothesis 8 needs to be rejected on the basis of these data. Given that this hypothesis was strongly supported by theories of learning and educational psychology, the results were clearly below expectations. Especially for the testing of hypothesis 8, more

songs should have been used in order to provide more opportunities for the testing of this expected correlation.

The issue that has already appeared in the discussion of research hypotheses 4 and 5 was explicitly tested in hypothesis 9: the effect the experience of a din had on recall performances. The hypothesis expected participants with a din experience to achieve higher immediate and delayed recall scores than participants without a din experience. Although no statistical difference could be detected for immediate recall scores and the respective gain scores, higher mean scores were achieved by participants with a din experience in both analyses. Astonishingly, statistically significant difference was finally found in the analyses of the delayed recall scores. In both analyses, participants with a din experience achieved significantly higher delayed recall scores ($p=0.0152$; din: $M=11.0439$; no din: $M=7.3000$) and gain scores ($p=0.0383$; din: $M=8.4211$; no din: $M=5.7000$) than those without a din experience. Regarding the gain scores, the effect of the din was considered modest to medium, whereas its effect on total delayed recall scores was measured as being moderate to even strong. These results appear to be the most intriguing of this study as they clearly provide support for the effectiveness of INMI or the din on rote memorization and recall performances. It thus can be highlighted that this study showed that a din is triggered more effectively through music than through text and that an experience of it leads to more successful verbal memorization and recall. What seems to be slightly paradoxical is the fact that these overlapping factors did not have a significant effect on the actual recall performances. Only marginally, delayed recall scores were affected positively by the music treatment and thereby potentially also by the din. In retrospect it appears difficult to determine the reasons for these partly discordant results, but as already indicated, a greater variety of songs as well as different time spans between immediate and delayed posttests might elicit different and more positive results.

Research hypothesis 10 dealt with out-of-school context learning and stated that those participants ($N=7$) who knew the song before the treatment would achieve higher immediate and delayed recall scores. As expected, these participants indeed reached significantly higher scores in the immediate ($p=0.0001$) as well as in the delayed recall test ($p=0.0011$). The effect of familiarity with the song and thus the effect of out-of-school context learning on immediate recall performances can be interpreted as large and on delayed recall performances as moderate to large. In this respect, research hypothesis 10

can be accepted and is supported by the data of this study. Apart from the recall performances in the posttests, also the pretest scores of these participants were considerably higher (M=11.5714). These results on incidental learning can be seen as an addition to research findings by Schwarz (2012: 135), who found in her study that intermediate Austrian English students indeed acquire vocabulary from pop songs in out-of-school contexts. Interestingly, the catchy tune phenomenon, which is the equivalent of INMI, was also identified as a major factor in the facilitation of incidental vocabulary learning in Schwarz's (2012: 135) study. The fact that the participants familiar with the song in this study achieved markedly high recall scores in all three tests can be related to either a much higher frequency and intensity of exposure to the song or possibly also to the personal choice of listening to and engaging with this particular song. This might imply a high personal interest in the song, which might have led them to engage more intensely with the lyrics promoting its recall and consequently also a learning process.

6.2.2 Limitations and suggestions for future research

Even though this research project was based on a previous study by Smith Salcedo (2002), several limitations exist that need to be considered. The most severe limitation to this study appeared to be the fact that recall performances based on only one song were examined in the quasi-experiment, which was mainly due to time and practicality constraints. As could be seen in previous studies (cf. Smith Salcedo 2002; Wallace 1994), different songs often elicited different performances and thus led to rather divergent results. In this respect, future research should be based on the inclusion of a greater number of songs, which might also allow for a more detailed investigation of influencing factors on recall performances as regards song characteristics, appraisal, and the song's potential to successfully trigger INMI/the din.

Apart from including a greater number of songs, future research should also investigate the effect of different spoken recordings. This suggestion developed out of the fact that this study's recording was rather unconventional compared to aural recordings typically used in EFL teaching as it placed the recipients in a very intimate and highly emotional situation with the speaker. Hence, as different songs occasion different performances and results, different recordings of texts might also yield different results.

Clearly, the rather small sample size and the sampling procedures, which were oriented largely towards practicality, constitute another limitation of this study. For future research it might be advisable to replicate the study not only with the use of more songs and probably more texts, but also with a larger sample size. For the selection of participants language proficiency and special educational needs should be considered in order to avoid that these factors distort the results.

As could be seen from the results of this study, delayed recall might benefit more successfully from the use of songs in the learning process than immediate recall. Hence, these results more closely resemble research findings by Rainey and Larsen (2002) than those by Smith Salcedo (2002). Given that the results of this study moreover show that a din occurrence is decisive for delayed recall performances, future research should focus more intensely on the effect of songs on long-term memory. For that reason, different intervals between immediate and delayed recall tests should be tried and tested as it might be the case that a prolonged time span available for the din to work, could lead to more marked differences between treatment groups than it was the case after only two weeks. It is also recommended to further investigate the din and its effect particularly in FLA contexts considering the latest findings in the currently strongly developing field of INMI research. As already suggested previously, language proficiency as a potentially influencing factor on recall performances needs to be taken into consideration and should be investigated in future research.

6.2.3 Implications for foreign language learning and teaching

Despite the rather modest results this study yielded, implications for FLL as well as teaching still need to be commented on. Apart from the literature review on music and pop songs in FLL and teaching, which led to a very positive impression of their incorporation, also this study has identified potentially beneficial aspects. The most important implication is that the pop song proved to be a teaching tool at least as effective as spoken recordings. This might specifically remove doubts of foreign language teachers who have not yet been convinced of the (pop) song's efficiency in FLL. Clearly, this study did not deal with a specific language related skill or competence, but rather with an underlying concept of FLL that is rote memorization. For this reason, I might argue that if rote memorization is more effective or at

least as effective when the input is musical than it is when the input is spoken, this positive effect should be transferrable to other language related skills, such as the acquisition of vocabulary and phrases, grammatical structures, as well as phonetics and phonology. All these areas appear to be dependent on being memorized. Study results further indicate that the experience of INMI or the din aid the recall of information and thus teaching materials should also be selected according to their potential of being able to trigger these mental phenomena. Clearly, this might not necessarily be songs, since the study showed that also the spoken recording led to a din occurrence among 63.9% of the text group's participants. Unfortunately, the positive effect of pop songs on delayed recall and thus long-term memory could not be proven satisfactorily in this study, tentative results in favor of pop songs were still indicated. In fact, it cannot be ruled out that its use might indeed promote long-term memory as the effect of a din on delayed recall scores is at least moderate to medium.

7. CONCLUSION

This study set out with the aim of investigating the role of music and songs in FLL and teaching. The in-depth review of literature on the topic addressed three relevant areas associated with this topic. Firstly, dealing with the cognitive aspect of music and language, it could be shown that music and language, apart from sharing several key features, can be considered two cognitive entities which strongly interact with each other. This interactive collaboration allows for a successful processing of songs in which language and music are ultimately merged. In detail, cognitively based mechanisms and phenomena such as priming, INMI or the din, as well as the function of a mnemonic device explain the fact that music and songs sometimes literally stick in the listeners' mind. Secondly, it could be further shown that, apart from the merely cognitive processes, most theories on FLA/FLL rely on features which are either partly inherent in music and songs or can be catered for through their use in the learning process. To mention only the most important advantages for FLL, music and songs are said to lower the learners' affective filters, constitute a source of authentic language, and broaden the range of input formats. These congruities along with the fact that language learners themselves use and appreciate songs and music in FLL render them as suitable tools in the FLA process. Moreover, studies have shown that among (Austrian)

adolescents music is the preferred medium they engage with and that pop music represents their primary interest and favorite music genre. The motivation for this elevated preference stems from the developmental phase of adolescence in which music and songs help them to find and shape their identity, handle their emotional states and they represent a source of affectionate talk and give them the possibility to express egocentric speech. Thirdly, the benefits of integrating music and songs in foreign language teaching have found to lie in their potential to teach orientated towards multiple intelligences, learners' interests, and towards initiating a process of personal meaning-making. All these aspects contribute to an increased motivation and therefore lead to a more sustained learning process. Although an unfortunately limited number of studies in the field seem to confirm the positive effect of music or songs on various specific language aspects, teachers still remain skeptical.

The present study was designed to investigate the phenomenon of the din as well as to determine the effect of pop songs and the din on the recall of text. The quasi-experiment with its pretest-posttest design tested the participants' recall performances immediately after having listened to a song or a spoken recording of it and for a second time after a period of two weeks. The additional survey gathered self-report data primarily on the din and on the appraisal of the song or the text. Whilst the study did not succeed in substantiating a positive effect of pop songs on immediate recall, it did partially confirm a medium effect on delayed recall, i.e., long-term memory. It was also shown that although the song was appraised more positively than the text, this did not influence recall performances. One of the most significant findings to emerge from this study is that INMI or a din experience is clearly relevant in memorization processes. It was revealed that the song triggered more often and frequently a din experience than the text and that more female than male participants reported on its experience. Based on self-reports, this study also found that a din triggered by a song is less likely to control than triggered from a spoken recording. Most importantly, the data also provided evidence for a positive correlation between the experience of the din and delayed recall performances. This was also reflected in the female participants' higher recall performances. Apart from these intriguing and thoroughly promising results on the influence of INMI or the din, school differences between the HS and AHS were found regarding recall performances, but not regarding din occurrence and frequency. Results rather supplementing the research on out-of-school context learning were gained as well and revealed that those participants familiar with the song achieved not

only significantly higher recall scores, but also considerably higher pretest scores. These findings thus definitely support the idea and success of this type of learning.

At this point it appears essential to emphasize that the results of this study can only be considered tentative mostly due to the small sample size and the towards practicality oriented research design. Nonetheless, the main conclusion that can be drawn from these findings is most aptly reflected in the conclusion of Medina (1990: 14), which she drew from her own study on vocabulary acquisition from songs:

> If music is a viable vehicle for second language acquisition to the same extent as other non-musical means, then songs can no longer be regarded as recreational devices having little instructional value.

In this respect, the use of music and (pop) songs in FLL and teaching should play a more prominent role. Moreover, as previous research and this study have shown, the first steps toward a solid basis for the justification of its use have undoubtedly been developed by now.

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Appendix 1: „Stuck“ by Stacie Orrico (omitted words and repetitive passages highlighted)

I can't get out of bed today
Or get you off my mind
I just can't seem to find a way to leave the love behind

I ain't trippin'
I'm just missin' you
You know what I'm saying
You know what I mean

You kept me hanging on a string
Why you make me cry
I tried to give you everything
But you just give lies

I ain't trippin'
I'm just missin' you
You know what I'm saying
You know what I mean

Every now and then
When I'm all alone
I've been wishing you would call me on the telephone
Say you want me back
But you never do
I feel like such a fool
There's nothing I can do
I'm such a fool for you

I can't take it
What am I waiting for
My heart's still breakin'
I miss you even more
And I can't fake it
The way I could before
I hate you but I love you
I can't stop thinkin' of you
It's true, I'm stuck on you

Now love's a broken record
that's been skippin' in my head
I keep singing Yesterday
Why we got to play these games we play?

I ain't trippin'
I'm just missin' you
You know what I'm saying
You know what I mean

Every now and then
When I'm all alone
I've been wishing you would call me on the telephone
Say you want me back
But you never do
I feel like such a fool

I can't take it
What am I waiting for
My heart's still breakin'
I miss you even more
And I can't fake it
The way I could before
I hate you but I love you
I can't stop thinkin' of you
It's true, I'm stuck on you

Every now and then
When I'm all alone
I've been wishing you would call me on the telephone
Say you want me back
But you never do
I feel like such a fool
There's nothing I can do
I'm such a fool for you

I can't take it
What am I waiting for
My heart's still breakin'
I miss you even more
And I can't fake it
The way I could before
I hate you but I love you
I can't stop thinkin' of you
I hate you but I love you
I can't stop thinkin' of you
I don't know what to do
I'm stuck on you

Appendix 2: Lyrics distributed to participants

STUCK

I can't get out of bed today
Or get you off my mind
I just can't seem to find a way to leave the love behind

I ain't trippin'
I'm just missin' you
You know what I'm saying
You know what I mean

You kept me hanging on a string
Why you make me cry
I tried to give you everything
But you just give lies

I ain't trippin'
I'm just missin' you
You know what I'm saying
You know what I mean

Every now and then
When I'm all alone
I've been wishing you would call me on the telephone
Say you want me back
But you never do
I feel like such a fool
There's nothing I can do
I'm such a fool for you

I can't take it
What am I waiting for
My heart's still breakin'
I miss you even more
And I can't fake it
The way I could before
I hate you but I love you
I can't stop thinkin' of you
It's true, I'm stuck on you

Now love's a broken record
That's been skippin' in my head
I keep singing Yesterday
Why we got to play these games we play?

I ain't trippin'
I'm just missin' you
You know what I'm saying
You know what I mean

Every now and then
When I'm all alone
I've been wishing you would call me on the telephone
Say you want me back
But you never do
I feel like such a fool

I can't take it
What am I waiting for
My heart's still breakin'

I miss you even more
And I can't fake it
The way I could before
I hate you but I love you
I can't stop thinkin' of you
It's true, I'm stuck on you

Every now and then
When I'm all alone
I've been wishing you would call me on the telephone
Say you want me back
But you never do
I feel like such a fool
There's nothing I can do
I'm such a fool for you

I can't take it
What am I waiting for
My heart's still breakin'
I miss you even more
And I can't fake it
The way I could before
I hate you but I love you
I can't stop thinkin' of you
I hate you but I love you
I can't stop thinkin' of you
I don't know what to do
I'm stuck on you

Appendix 3: Gap-filling test (pre-, immediate post-, and delayed post-test)

Geburtsdatum: _____

STUCK

I can't get out of bed _____

Or get you off my mind

I _____ can't seem to find a way to leave the _____ behind

I ain't _____

I'm just missin' you

You know what I'm _____

You know what I _____

You _____ me hanging on a string

Why you make me cry

I _____ to give you everything

But you just give _____

I ain't _____XXX_____

I'm just missin' you

You know what I'm _____XXX_____

You know what I _____XXX_____

Every now and then

When I'm all _____

I've been wishing you would call me on the telephone

_____ you want me back

But you never do

I feel like such a fool

There's _____ I can do

I'm such a fool for you

I can't _____ it

What am I _____ for

My heart's still breakin'

I _____ you even more

And I can't _____ it

The way I could _____

I hate you but I love you

I can't stop thinkin' of you

It's _____, I'm stuck on you

Now love's a broken _____

That's been skippin' in my head

I _____ singing Yesterday

_____ we got to play these games we play?

I ain't _____XXX_____

I'm just missin' you

You know what I'm _____XXX_____

You know what I _____XXX_____

Every now and then

When I'm all _____XXX_____

I've been wishing you would call me on the telephone

_____XXX_____ you want me back

But you never do

I feel like such a fool

I can't _____XXX_____ it

What am I _____XXX_____ for

My heart's still breakin'

I _____XXX_____ you even more

And I can't _____XXX_____ it

The way I could _____XXX_____

I hate you but I love you

I can't stop thinkin' of you

It's _____XXX_____, I'm stuck on you

Every now and then

When I'm all _____XXX_____

I've been wishing you would call me on the telephone

_____XXX_____ you want me back

But you never do

I feel like such a fool

There's _____XXX_____ I can do

I'm such a fool for you

I can't _____XXX_____ it

What am I _____XXX_____ for

My heart's still breakin'

I _____XXX_____ you even more

And I can't _____XXX_____ it

The way I could _____XXX_____

I hate you but I love you

I can't stop thinkin' of you

I hate you but I love you

I can't stop thinkin' of you

I don't know what to do

I'm stuck on you

Appendix 4: Questionnaires: Q 1 – sung treatment group (after immediate post-test)

FRAGEBOGEN I	GROUP: Song

Geburtsdatum: _____

Geschlecht: □ weiblich □ männlich

1. Hat dir das gehörte Lied gefallen?

□ nein, weil _____
□ ja, weil _____

2. Hast du das gehörte Lied zuvor schon einmal wo gehört?

□ nein
□ ja

Wenn ja:

Woher kennst du das Lied? Wo hast du es gehört?

_____

_____

Was weißt du sonst über das Lied? (wer hat es gesungen, etc.)

_____

_____

Q 1 – spoken treatment group (after immediate post-test)

FRAGEBOGEN I	GROUP: Text

Geburtsdatum: _____

Geschlecht: □ weiblich □ männlich

1. Hat dir der gehörte Text gefallen?

□ nein, weil _____

□ ja, weil _____

2. Hast du den gehörten Text zuvor schon einmal wo gelesen, gehört oder gesehen?

□ nein

□ ja

Wenn ja:

Woher kennst du den Text? Wo hast du ihn gehört/gelesen/gesehen?

_____

_____

Was weißt du sonst über den Text? (wer hat ihn geschrieben, etc.)

_____

_____

Q 2 – sung treatment group (after delayed post-test)

FRAGEBOGEN II	GROUP: Song

Geburtsdatum: _____

Geschlecht: □ weiblich □ männlich

1. Hast du das Lied in der Zwischenzeit nochmals irgendwo gehört?

□ nein
□ ja

Wenn ja, wo? _____

2. Hast du das Lied und seinen Text oder einzelne Wörter jemals wieder in deinem Kopf gehört ohne, dass du es selbst wolltest? (nicht während der Durchführung der Übung!)

□ nein
□ ja

Wenn ja:

a) Wie oft ist dir das seither in etwa passiert?

□ jeden Tag
□ ein paar Mal pro Woche
□ ein Mal
□ eigene Angabe: _____

b) Was hast du gemacht während es passiert ist?

_____

c) War es dir möglich diese Wiederholungen der Wörter in deinem Kopf zu beenden oder sind sie weitergegangen wie ein Ohrwurm?

□ nein, ich konnte es selbst nicht stoppen.
□ ja, ich konnte es selbst stoppen.

Wenn ja, hat es dann nochmal von selbst begonnen?

□ nein
□ ja

Q 2 – spoken treatment group (after delayed post-test)

FRAGEBOGEN II	GROUP: Text

Geburtsdatum: _____

Geschlecht: □ weiblich □ männlich

1. Hast du den Text in der Zwischenzeit nochmals irgendwo gehört?

□ nein
□ ja

Wenn ja, wo? _____

2. Hast du den gehörten Text oder einzelne Wörter jemals wieder in deinem Kopf gehört ohne, dass du es selbst wolltest? (nicht während der Durchführung der Übung!)

□ nein
□ ja

Wenn ja:

d) Wie oft ist dir das seither in etwa passiert?

□ jeden Tag
□ ein paar Mal pro Woche
□ ein Mal
□ eigene Angabe: _____

e) Was hast du gemacht während es passiert ist?

_____

f) War es dir möglich diese Wiederholungen der Wörter in deinem Kopf zu beenden oder sind sie weitergegangen wie ein Ohrwurm?

□ nein, ich konnte es selbst nicht stoppen.
□ ja, ich konnte es selbst stoppen.

Wenn ja, hat es dann nochmal von selbst begonnen?

□ nein
□ ja

Appendix 5: Letters to the parents: Letter to the parents of the sung treatment group

Liebe Eltern!

Mein Name ist Angelika Höfler und ich studiere Lehramt Englisch und Geographie an der Universität Wien. Im Rahmen meiner Diplomarbeit möchte ich ein wissenschaftliches Experiment mit den Schülerinnen und Schülern der 3. Klassen durchführen. Im Zuge dieses Experiments wird Ihre Tochter oder Ihr Sohn von mir eine Aufgabe zu einem Liedtext bekommen, die nach etwa zwei Wochen wiederholt wird. Zusätzlich wird sie oder er auch zwei kurze Fragebögen von mir erhalten.

Die Durchführung des Experiments ist bereits vom Landesschulrat für Oberösterreich genehmigt worden. Selbstverständlich werden die Daten anonym und vertraulich behandelt. Dies bedeutet, dass die Ergebnisse dieser Studie ausschließlich für meine Forschungsarbeit verwendet werden und, dass die Ergebnisse keinen Einfluss auf die Schulnoten Ihrer Tochter oder Ihres Sohnes haben werden.

Durch die Teilnahme leistet Ihre Tochter oder Ihr Sohn einen wichtigen Beitrag für eine wissenschaftliche Untersuchung und ich bitte Sie daher um Ihre Unterstützung.

Sollten Sie nicht mit der Teilnehme Ihres Kindes einverstanden sein, so teilen Sie dies bitte schriftlich innerhalb einer Woche dem Klassenvorstand mit.

Vielen Dank für Ihre Unterstützung!

Mit freundlichen Grüßen,
Angelika Höfler

Letter to the parents of the spoken treatment group

Liebe Eltern!

Mein Name ist Angelika Höfler und ich studiere Lehramt Englisch und Geographie an der Universität Wien. Im Rahmen meiner Diplomarbeit möchte ich ein wissenschaftliches Experiment mit den Schülerinnen und Schülern der 3. Klassen durchführen. Im Zuge dieses Experiments wird Ihre Tochter oder Ihr Sohn von mir eine Aufgabe zu einem Englischen Text bekommen, die nach etwa zwei Wochen wiederholt wird. Zusätzlich wird sie oder er auch zwei kurze Fragebögen von mir erhalten.

Die Durchführung des Experiments ist bereits vom Landesschulrat für Oberösterreich genehmigt worden. Selbstverständlich werden die Daten anonym und vertraulich behandelt. Dies bedeutet, dass die Ergebnisse dieser Studie ausschließlich für meine Forschungsarbeit verwendet werden und, dass die Ergebnisse keinen Einfluss auf die Schulnoten Ihrer Tochter oder Ihres Sohnes haben werden.

Durch die Teilnahme leistet Ihre Tochter oder Ihr Sohn einen wichtigen Beitrag für eine wissenschaftliche Untersuchung und ich bitte Sie daher um Ihre Unterstützung.

Sollten Sie nicht mit der Teilnehme Ihres Kindes einverstanden sein, so teilen Sie dies bitte schriftlich innerhalb einer Woche dem Klassenvorstand mit.

Vielen Dank für Ihre Unterstützung!

Mit freundlichen Grüßen,
Angelika Höfler

Appendix 6: Abstracts and curriculum vitae

Abstract

There is a commonly held belief that music and songs have a beneficial effect on learning and recall processes. Various research areas have contributed to the investigation of this effect so far. Cognitive science has shown that the recall of information can be improved when the information is learned along with a melody and that cognitively based phenomena such as priming, involuntary mental imagery (din), and the mnemonic effect contribute to this result. Furthermore, most foreign language acquisition theories identify elements and effects relevant for a successful acquisition of language which are also inherent in music and songs. From a pedagogical perspective the use of music and songs is said to have a positive effect on motivation, the catering to learners' interests, and on the acquisition of various language skills. In this respect, this thesis reviews the role of music and songs in foreign language learning and teaching and in particular investigates the effect of a pop song and the din on text recall performances among Austrian intermediate students of English in an empirical study. Since only one study exists which has investigated both effects so far this study contributes notably to the body of research in this area. The research methodology represents a mixed-methods approach combining a quasi-experiment with a pretest-posttest design and a survey. The 82 participants of the study attending the 8th grade of either a Gymnasium or a Hauptschule were tested on the recall of the lyrics of a pop song after having listened to either the song or a spoken recording of it. Results on the din show that it is more frequently experienced by female participants, that it is more frequently triggered by the song, and that it is less controllable when triggered by the song. Results on recall performances show that only delayed recall performances are affected more positively by the song than by the spoken recording and that female participants show significantly better recall performances. Combined analyses find that a din experience leads to significantly better delayed recall performances among all participants, which indicates that a din experience is relevant in memorization processes. These findings suggest that the use of pop songs in foreign language learning has a positive effect on recall in general and in particular on long-term memorization and that it should thus be given more weight to in foreign language teaching.

Zusammenfassung

Die Annahme, dass Musik und Songs einen positiven Effekt auf Lern- und Wissensreproduktionsprozesse haben, ist weit verbreitet. Verschiedenste Forschungsbereiche haben bisher zur Untersuchung dieses Effekts beigetragen. Die Kognitionswissenschaften haben gezeigt, dass die Reproduktion von Informationen verbessert werden kann, wenn diese in Verbindung mit einer Melodie gelernt werden und dass kognitive Phänomene wie priming, involuntary mental imagery (din) und der mnemonic effect zu diesem Ergebnis beitragen. Überdies identifizieren die meisten Theorien zum Fremdsprachenerwerb für den erfolgreichen Spracherwerb relevante Elemente und Effekte, die in und durch Musik und Songs von Natur aus gegeben sind. Aus pädagogischer Sicht wird dem Einsatz von Musik und Songs ein positiver Effekt auf die Motivation, das Eingehen auf die Interessen der Lernenden und den Erwerb von verschiedensten sprachlichen Kompetenzen nachgesagt. In diesem Sinn bietet die vorliegende Arbeit eine Literaturanalyse zur Rolle von Musik und Songs im Fremdsprachenerwerb und –unterricht und untersucht im Besonderen in einer empirischen Studie den Effekt eines Popsongs und des dins auf die Fähigkeit einen Text zu reproduzieren. Zielgruppe der Studie waren österreichische Schüler, die im Bereich Englisch fortgeschrittene Anfänger sind. Da bis heute nur eine Studie existiert, die beide Effekte untersucht, trägt die vorliegende Studie ganz besonders zur Gesamtheit der Forschungsliteratur in diesem Bereich bei. Die Forschungsmethode stellt einen Mixed-Methods-Ansatz dar, der ein Quasi-Experiment mit einem Pretest-Posttest Design und eine Befragung kombiniert. Die 82 StudienteilnehmerInnen, die die achte Schulstufe in einem Gymnasium oder einer Hauptschule besuchen, wurden auf ihre Fähigkeit den Liedtext eines Popsongs zu reproduzieren getestet nachdem sie entweder den Song oder eine gesprochene Aufnahme dessen gehört haben. Die Ergebnisse über den din zeigen, dass er von weiblichen Teilnehmerinnen häufiger erlebt wird, dass er häufiger durch einen Song ausgelöst wird und dass er weniger kontrollierbar ist, wenn er durch einen Song ausgelöst wird. Die Ergebnisse über die textliche Reproduktion zeigen, dass sich der Song nur auf die zeitlich verzögerte Reproduktion positiver als die gesprochene Aufnahme auswirkt und dass die weiblichen Teilnehmerinnen allgemein eine signifikant bessere Reproduktion des Textes aufweisen. Kombinierte Analysen stellen fest, dass das Erleben eines dins zu einer signifikant besseren verzögerten Reproduktion des Textes unter allen TeilnehmerInnen führt. Dies deutet darauf

hin, dass das Erleben eines dins relevant für Lernprozesse ist. Diese Resultate deuten an, dass der Einsatz von Popsongs im Fremdsprachenerwerb einen positiven Effekt auf das Reproduktionsvermögen im Allgemeinen und auf das Langzeiterinnerungsvermögen im Speziellen hat. Aus diesem Grund sollte dem Einsatz von Musik und Songs im Fremdsprachenerwerb mehr Bedeutung zugemessen werden.

CURRICULUM VITAE

Persönliche Daten

Name	Angelika Höfler, BEd.
Geburtsort und -datum	4. April 1987
Staatsbürgerschaft	Österreich

Ausbildung

1993-1997	Volksschule Steyr-Gleink, OÖ
1997-2001	Musikhauptschule Steyr, OÖ
2001-2006	Höhere Lehranstalt für wirtschaftliche Berufe Steyr, OÖ Zweig: Kultur- und Kongressmanagement
2006-2007	Paris Lodron Universität Salzburg Lehramt Englisch und Italienisch
2007-2010	Pädagogische Hochschule der Diözese Linz, OÖ Hauptschullehramt Englisch und Geografie; Abschluss mit BEd.
Wintersemester 09/10	Mater Dei Institute of Education Dublin, Irland Erasmus Auslandsstudienaufenthalt mit den Schwerpunkten Britische und irische Literaturwissenschaften, Irische Kulturstudien
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Relevante Berufserfahrung

seit März 2013	NMS Steyr-Tabor, OÖ & Integrationszentrum Paraplü Steyr, OÖ Durchführung der Lernbetreuung und Deutschförderung für Kinder und Jugendliche mit Migrationshintergrund
seit Oktober 2012	BFI Steyr, OÖ Englisch-Trainerin für Erwachsenenbildungskurse
2007 und 2008	GIS-Day Linz, OÖ Durchführung eines Workshops zum Thema GIS
seit 2008	Nachhilfeunterricht für Englisch, Italienisch und Französisch