



Lexical Inference during Reading as a Method of Teaching Vocabulary

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Zásady pro vypracování:

Cílem mé práce je shrnout poznatky a výzkumy o odhadování významu slov během čtení a jeho vlivu na výuku slovní zásoby. Mým záměrem je představit odhadování významu slov jako vhodnou intencionální metodu výuky slovní zásoby. Dále bych chtěla na příkladech ozřejmit strategie, metody a postupy používání inference v praxi a zjistit míru využívání této metody v praxi při výuce anglického jazyka na základních školách.

Metodami práce bude zejména studium literatury, shrnutí dosavadních výzkumů, které prokazují vhodnost využití odhadování významu slov jako metody výuky slovní zásoby. Další metodou bude dotazníkové šetření směřované na zjištění znalostí této metody mezi učiteli na základních školách a její používání v praxi.

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Anotace

Tato bakalářská práce se zabývá odhadováním významu slov při čtení a jeho používáním učiteli při výuce na základních školách v České republice. Práce se skládá ze dvou částí: teoretické a praktické. Cílem teoretické části je vytvořit přehled současného výzkumu v oblasti lexikální inference, dále představit strategie a postupy využívané při odhadu významu. Praktická část představuje výsledky a analýzu dotazníku, který měl za cíl získat data o znalosti a používání této metody mezi učiteli anglického jazyka na základních školách v České republice. Výsledky ukazují, že učitelé učí své žáky používat odhadování významu slov spíše intuitivně. V menších skupinách žáků se používání inference vyskytuje častěji. Zkušení učitelé vykazují vyšší tendenci k záměrnému používání inference v hodinách než učitelé s kratší praxí.

Klíčová slova: lexikální inference, odhadování významu slov, kontext, kontextové klíče, lingvistické klíče, výuka slovní zásoby, vzdělávání

Abstract

This bachelor's thesis examines lexical inferencing during reading and its application by teachers at lower-secondary schools in the Czech Republic. This thesis consists of two parts: theoretical and practical. The aim of the theoretical part is to create an overview of current research; it also presents the strategies and methods used for lexical inferencing. The practical part presents the results and analysis of a questionnaire aimed at obtaining data about the knowledge and application of this method by English language teachers at lower-secondary schools in the Czech Republic. The results indicate that teachers generally teach students to use lexical inferencing on a more intuitive basis. Inferencing occurs more frequently in smaller groups of students. Experienced teachers show a higher tendency towards intentional use of inferencing than teachers with less experience.

Key words: lexical inference, guessing meaning, context, context clues, linguistic clues, teaching vocabulary, education

Contents

Introduction	10
1. What is lexical inferencing?.....	13
1.1. Incidental and deliberate learning	13
1.2. Inference as a compensation strategy	14
1.3. Definitions and general review of literature.....	15
1.4. What does it mean to “know” a word?.....	17
2. Factors influencing the inferencing process.....	19
2.1. Learner factors.....	19
2.2. Text factors.....	21
2.2.1. Density, number of occurrences, proximity of recurrences and importance of unknown words.....	21
2.2.2. Familiarity of the concept, concrete vs. abstract referents, amount of polysemy of unknown words	22
2.2.3. Context and contextual clues.....	22
2.2.4. Classification of clues (cues).....	24
2.3. Causes of poor guessing	26
3. Learning through inferencing.....	28
3.1. Gradual process of inferencing.....	28
3.2. Benefits of inferencing	29
3.3. Top-down and bottom-up approaches	30
3.4. Practical examples of inferencing strategies	32
3.4.1. Use of background knowledge (outside the text).....	33
3.4.2. Use of context outside the sentence with an unknown word	33
3.4.3. Use of context within the sentence with an unknown word.....	33
3.4.4. Use of word-part analysis of an unknown word.....	34
3.4.5. Use of association or collocation with an unknown word.....	34
3.4.6. Use of syntax knowledge	34
3.4.7. Use of visual or auditory similarities with an unknown word	35
3.4.8. Combining the clues.....	35
4. Helping students use inferencing	37
4.1. Choosing the text to infer from (quality of context).....	37
4.2. Encouraging learners to read (quantity of input).....	38
4.3. Teaching learners specific inferencing strategies.....	38
5. To what extent do Czech teachers at lower-secondary schools encourage learners to use inference?.....	43
5.1. Method of research.....	44
5.1.1. Participants	44
5.1.2. Data collection.....	45

5.2.	Analysis and results	45
5.2.1.	Question 1: The school where you teach.....	45
5.2.2.	Question 2: The size of group you usually teach (choose the group where you teach the most lessons)	46
5.2.3.	Question 3: Experience in teaching (in years).....	47
5.2.4.	Question 4: Knowledge of inferencing (guessing the meaning)	47
5.2.5.	Question 5: Use of inference in your daily life when reading or listening in English.....	48
5.2.6.	Question 6: Use of inferencing in a class	48
5.2.7.	Question 7: Use of contextual clues outside the text (use of cultural or general knowledge or knowledge of the topic or concept).....	49
5.2.8.	Question 8: Use of contextual clues outside the sentence, where the unknown word appears	50
5.2.9.	Question 9: Use of contextual clues within the sentence, where the unknown word appears	51
5.2.10.	Question 10: Use of association or collocation (with the key word).....	51
5.2.11.	Question 11: Use of syntax knowledge (subject, verb or object position, position of adjectives and adverbials, conjunctions, relative or nominal clauses, etc	52
5.2.12.	Question 12: Use of visual or auditory forms (similarity to with another word, using morphology – suffixes, prefixes, or endings such as -ed, -ing, similarity of a sound – onomatopoeia).....	53
5.2.13.	Question 13: Are you aware of the benefits of inferencing? If yes, please elaborate.	54
5.2.14.	Question 14: Would you like to know more about inferencing and its benefits?.....	56
5.2.15.	Question 15: Would you like to have ready-made material for use in class that would help you to teach students how to use inference?	57
6.	Comparative statistics	58
6.1.	Does group size influence teaching inference?	58
6.2.	Do teachers teach inference more intuitively or intentionally?.....	59
6.3.	Does teaching experience influence teaching students how to use inference?.....	60
	Conclusion	62
	References	64
	List of appendices	66

List of tables

Table 1: The school type	46
Table 2: Group size	46
Table 3: Teaching experience	47
Table 4: Knowledge of inferencing	48
Table 5: Use of inference in daily life.....	48
Table 6: Use of inference in class	49
Table 7: Use of contextual clues outside the text.....	50
Table 8: Use of contextual clues outside the sentence.....	50
Table 9: Use of contextual clues within the sentence	51
Table 10: Use of association or collocation	52
Table 11: Use of syntax knowledge	53
Table 12: Use of visual or auditory form	53
Table 13: Interest in inferencing	57
Table 14: Interest in teaching material.....	57
Table 15: Teaching inference in class compared to the group size.....	58
Table 16: Teaching various inferencing strategies compared to the group size	59
Table 17: Intuitive and intentional inference	60
Table 18: Teaching experience and inference.....	61

Introduction

The importance of learning and teaching a foreign language is increasing in the modern multicultural global world. The need to communicate and to understand each other is becoming particularly significant. Nevertheless, if learners are to master foreign languages, they need to be taught how to learn themselves. In the reality of everyday communication learners need to be able to grasp the conveyed message even without knowing all the words. *“It would be hopeless to try to teach every word, every grammatical structure, every construction, every peculiarity of usage... They cannot succeed by merely learning what is thought in the way it is taught”* (Carton, 1966, 1).

If asked, students often designate vocabulary learning as one of the most crucial elements of learning a language, for unknown vocabulary may often cause comprehension problems. All languages are based on words, and learning new words never stops, both in our own mother tongue or while learning a foreign language, but *“no matter how many words learners acquire, they will always be coming across unfamiliar words”* (Thornbury, 2002, 148). Encountering a few unknown words in a text does not usually present an obstacle to understanding. However, if the unfamiliar word represents an important part of a text, or if it occurs in the text more frequently, learners may employ a range of strategies. The first solution that usually comes to mind is to look up the meaning in a dictionary or to ask a friend or a teacher. Constant interruptions of the reading process may, however, be very off-putting. Readers, especially young ones, may lose context and consequently interest in the text. What can be done when none of the above mentioned resources

work? A further strategy can be applied to fill the gap in comprehension: to guess the meaning. This may be done intuitively with variable results depending on the learners' general inferencing skills. However, it can also be done intentionally and deliberately after students have been taught to use a range of different inferencing strategies.

The main focus of this work is not merely to sum up the theoretical background of the phenomenon of inferencing, its research and its influence on vocabulary learning, but mainly to introduce inferencing as an intentional and relevant method of vocabulary teaching, and to present strategies which result in more accurate inferencing. The main purpose of this thesis is an inquiry into the extent of the application of inference in language teaching at lower-secondary schools in the Czech Republic. The hypothesis that teachers encourage students to use lexical inferencing only intuitively will be surveyed using a questionnaire as its general research question. The results will be examined from the perspectives of school type, group size and length of practice in teaching.

Inference in its broadest meaning is the ability to derive an implicit piece of information, in the form of syllogism, from other pieces of information contained in a text. Such conclusions are performed by everyone in any language, even in one's first language. Inference can be as rudimentary as comprehension of a pronoun in a text referring to an aforementioned individual, or as complex as understanding a subtle message conveyed through a metaphor or background knowledge (Kispaľ, 2008, 2). It helps us to read between the lines, understand meanings in poems and jokes, comprehend motives, goals, causal relations, emotional reactions, etc. The ability to infer is a basic skill people need to communicate. Hence, the study of

inference encompasses linguistics, logic, literary theory, cognitive psychology and psycholinguistics alike. The scope of this thesis focuses on inference used by learners of foreign languages, or a second language, as a strategy to fill gaps in comprehension while reading. For the purposes of this thesis, the terms “second language” or “L2”, and “foreign language” or “EFL” are used interchangeably. Some quoted studies were performed with students of L2; other studies dealt with students of a foreign language. The difference between the two is not relevant for the scope of this thesis.

THEORETICAL PART

1. What is lexical inferencing?

1.1. Incidental and deliberate learning

Guessing meaning from a text can proceed incidentally or deliberately. Implicit, incidental learning includes attention to the stimulus (in our case formal recognition of an unknown word), but does not involve other conscious and intentional operations. Repeated exposure plays a main role in implicit learning. Explicit, deliberate learning is more conscious. Learners make hypotheses, and search for structures and rules. Learning the meaning of a word is a more conscious process. (Ellis in Nation, 2001, 33-34).

It is widely believed that incidental learning is the “default” learning mode of learning mother tongues in childhood (Incidental Learning Hypothesis) that it is responsible for the immense growth of vocabulary in early years, because children do not learn their language deliberately but incidentally. Some studies indicate that learners of a foreign language (EFL) can also learn words incidentally, as a “by-product” of extensive reading, for example, through repeated encounters in context. Incidental learning happens when learners focus on understanding the overall message, the task, but repeated encounters gradually bring about understanding through repeatedly seeing the formerly unknown word. The reason why a majority of studies have shown that such learning gains are very small is that the amount of actual input (and therefore encounters) when learning EFL is usually insufficient. By increasing the input, students can increase the amount of vocabulary

learnt incidentally, with a minimum of effort. However, incidental learning is a time-consuming process. A word is learnt faster, both explicitly and deliberately, but not in all contexts, collocations and associations, since most deliberate learning tasks contribute to one or two collocates (Webb and Nation, 2017, 48-58).

Incidental vocabulary learning does equate to unintentional vocabulary learning. Focus on an unknown word is never unintentional. Intention is the beginning of deliberate learning. Therefore it can be assumed that incidental learning is enhanced by deliberate learning (Webb and Nation, 2017, 54). Incidental learning through guessing from context is not opposed to the direct intentional learning of vocabulary; instead they are seen as complementary, one enhancing the other (Nation, 2001, 232).

1.2. Inference as a compensation strategy

Guessing the meaning of unfamiliar words is usually classified as one of the learning strategies: the compensation strategy. Compensation strategies enable learners to use foreign languages regardless of their limited knowledge; they compensate for their insufficient repertoire in grammar or vocabulary (Vlčková, 2007, 55). Despite the fact that in the 1980s some researchers (such as Chamot in Vlčková, 2007, 56) did not consider inference a learning strategy and they preferred the term “communication strategy”, it did not become the predominant view. The counterargument is that both incentives – to learn and to communicate are interconnected and impossible to accurately distinguish from each other (Vlčková, 2007, 62). Oxford (1990) classifies learning strategies as direct (memory, cognitive and compensation strategies) and indirect (meta-cognitive, affective and social

strategies). None of the strategies can be used alone; they complement each other. This especially applies to inference.

Oxford (1990) divides compensation strategies into two sets: Guessing Intelligently in Listening and Reading, and Overcoming Limitations in Speaking and Writing. Guessing involves a variety of clues – linguistic and non-linguistic. Using linguistic cues is closely related to cognitive strategies such as reasoning deductively, analysing expressions, analysing contrastively or transferring. When making a guess the learner must analyse a phrase, deduct or use interlanguage transfer. Inference is also intertwined with memory strategies, using semantic maps, visual projection, associations, and using patterns. Even indirect strategies support inferencing. Conscious inference can be assessed, evaluated, and performed on purpose. Inferring also supports affective strategy, and vice versa. Successful guessing supports the learner's positive feeling from his or her progress (Oxford, 1990, 90-92).

1.3. Definitions and general review of literature

There is a wealth of differing definitions of inference depending on the particular angle from which authors view the inferencing process and on which they focus their attention. This thesis only focuses on the inference from a linguistic and pedagogical point of view. Carton, who was the first to publish a substantial in-depth study on inferencing, offers several definitions, some broad, some very precise: *“It (inferencing) is intended to refer to a process of identifying unfamiliar stimuli. In foreign language learning inferencing is concerned with the acquisition of new morphemes and vocables in “natural contexts”* (Carton in Haastруп, 1991, 22).

This definition contains both: a broad approach as comprehension procedure, as well as a narrowed focus on morphological and lexical procedures. Another of his definitions focuses on the role of familiarity and the extent to which the process is conscious: *“In inferencing, attributes and contexts that are familiar are utilized in recognising what is not familiar”* (Carton in Haastrup, 1991, 22). In his earlier work Carton (1966) viewed inferencing *“as a particular variety of response. It may occur when an individual encounters an unfamiliar stimulus. The inferential response is characterised by the fact that the familiar attributes of the novel stimulus, or the context containing the stimulus, elicit a concept on the part of an individual”* (1). Carton focused mainly on description and categorization of contextual cue-types (intra-lingual, interlingual and extralingual). Although he paid little attention to the cognitive process required to infer correctly, his work stimulated considerable interest and further research of this *“complex intellectual process”* (Paribakht, Wesche, 2010, 6).

In the 1980s, increased research into first language vocabulary, specifically learning through extensive reading, led to increased research into L2 reading comprehension. As a result, some L2 educators such as Krashen (1989) started to perceive reading as the main source of vocabulary learning. Ellen Bialystok published several articles building on Carton’s work. With her experiments she was able to indicate that supplementary information to the text and procedural instruction such as a “mini-lesson of inferencing” could improve readers’ successful inferencing and thus comprehension (Bialystok in Paribakht, Wesche, 2010, 7). Haastrup, who was also inspired by Carton, later focused her work on actual inferencing procedures and types of cues. She defines the lexical inferencing procedure thus: *“The procedures of lexical inferencing involve making informed guesses as to the meaning*

of a word in the light of all available linguistic cues in combination with the learner's general knowledge of the world, her awareness of the co-text and her relevant linguistic knowledge” (Haastrup, 2010, 13, 40).

Brown and Yule (1983) address three parts of inferencing: providing missing links, making non-automatic connections and filling in gaps or discontinuities in interpretations (Brown and Yule in Haastrup, 1991, 21). Grice (1975) specifies inference as *“an intention-and-inference process whereby the illocutionary force of an utterance is identified by the hearer by means of an inferential process based on mutual beliefs and linguistic and communicative assumptions ”* (Grice in Haastrup, 1991, 21). Haastrup (1991) defines inferencing as a *“central receptive process in which presupposition in the form of assumed common ground, notional as well as linguistic, has an important role to play”* (21).

Paribakht and Wesche (2010) see inferencing as a *“complex cognitive process that plays an important role in both word and text comprehension, and at the same time can result in initial learning of new words or otherwise contribute to vocabulary development”* (1).

1.4. What does it mean to “know” a word?

Knowing a word is widely understood as understanding its form and meaning. Be that as it may, is this sufficient? As an example, students of English learn the word “wake” quite early in the process of learning as one of the first verbs in collocations of “wake up” in the morning. Does this mean they “know” the word? Later, they might learn the meaning of the phrase “wake up to something”, as “to realise”, and some might even learn “wake” as a noun, a funeral meeting of the

bereaved. However, if students are not familiar with the cultural connotations, they might still not understand the meaning as a form of a vigil, when the bereaved visit the deceased, they stop the clock, cover the mirrors, open the window, they celebrate life in the hope that the deceased might still “wake up”. In other words, knowing the word *“is not just knowing its dictionary meaning (or meanings) – it also means knowing the words commonly associated with it (its collocations) as well as its connotations, including its register and its cultural accretions”* (Thornbury, 2002, 15).

Incidental learning of vocabulary is therefore the most important of all sources of vocabulary learning (Nation, 2001, 232). Repeated encounters in context help students gradually learn not only the meaning, but also written forms, grammatical functions and collocations. It is rarely possible to learn a word after one encounter. The general rule is that *“vocabulary knowledge is gained in small increments until eventually there is sufficient knowledge to understand and use words”* (Webb and Nation, 2017, 50-51).

According to Leech (in Haastrup, 1991, 33), meaning is a property to given language whereas in pragmatics, meaning is defined relative to the speaker, because there is a distinction between “what does the word mean” (semantics) and “what does the speaker want to express” (pragmatics). Rommetveit (in Haastrup, 1991, 32) as a pragmatist, identifies three types of meaning: reference and representation, associative meaning and emotive meaning. When learners read or hear the word in context they decode all the types of meaning. The utterance: “There is an angry bull standing behind you” will be decoded not only as information, but also as a warning and stimulus to action.

2. Factors influencing the inferencing process

It is believed that there are many factors influencing guessing procedures. Haastrop (1991) divides them as “*the nature of the task*” and “*the contribution of the individual*” (206-207).

2.1.Learner factors

Students possess different abilities to guess words from context correctly. There are many ways of approaching the guessing task, different abilities, knowledge and skills. “*In general, a good guesser uses a variety of clues, checks various types of clues against each other, does not let the form of the word play too large a part and does not arrive at a guess prematurely*” (Nation, 2001, 247).

The major factor for successful guessing is ESL proficiency and reading comprehension (Paribakht and Wesche, 2010, 12). Studies of guessing from context show high correlations between inferencing skills and vocabulary size, reading skills, L1 reading comprehension and verbal intelligence in general (Nation, 2001, 245). This means that a learner’s reading ability is a good predictor of inferencing skills (Nation, 2001, 243) and that without good general reading skills, success in inferencing will not be possible. By teaching reading skills we also enhance inferencing skills, and vice versa. Nevertheless, it seems that most clues for guessing meaning from context come from the immediate context of the unknown word, within the same sentence. Only about 10% of context clues come from other sentences (Cziko in Nation, 2001, 246), which means that there are specific aspects to inference that are not included in general reading proficiency (Nation, 2001, 245).

Another factor influencing the student's ability to infer is vocabulary size, which in turn is likely to be improved again by inference. The reasons for this lie in the fact that with broad vocabulary knowledge the density of unknown words will be smaller. Students will also have a deeper understanding of words they already know (all their collocations) and therefore it will be easier to interpret each new context. Furthermore, with better vocabulary size, the student's spelling, morphology and semantics will be more established (Webb and Chang in Webb and Nation, 2017, 96). There is no clear indication if there is any threshold, or minimal vocabulary size, for the ability to infer using simplified texts. Studies have been undertaken to determine vocabulary size for reading unsimplified texts. For reading unsimplified texts the minimum vocabulary size is around 5000 words (Hirsh and Nation, 1992, 693).

Other factors on the part of learners that influence guessing quality are general knowledge of the world, familiarity of the topic, cultural patterns (Paribakht and Wesche, 2010, 12), ability to infer and in particular, working memory, because to infer means to integrate diverse information from successively met context clues (Daneman and Green in Nation, 2001, 248, 249). Successful inferencers are also believed to be intelligent, good students overall, and good at problem solving tasks. Furthermore, good inferencers are risk takers, with analytic cognitive style, which is found to be one of the best predictors of ESL success (Haastrup, 1991, 40- 41, 206-207).

The last factors that should be mentioned are attitude towards inferencing and motivation. Learners often do not attempt to infer meaning; they simply ignore some of the unknown words if they find them unimportant for general comprehension of

the text. Many factors can influence their decision to infer, some of which are linked to their motivation and some dwell on how difficult or easy they perceive the task. Nouns and verbs are generally more likely to be inferred since they are usually more important for the comprehension of the gist (Paribakht and Wesche, 2010, 10-11). Encouraging learners to use inferencing and teaching them inferencing strategies may result in more attempts to make a guess.

2.2. Text factors

2.2.1. Density, number of occurrences, proximity of recurrences and importance of unknown words

The ability to infer is largely influenced by the quality of the text. Too many unknown words in a text make guessing difficult. It is widely accepted that about 95% of the words in a text need to be familiar, which means one unknown word for every 20, but an optimal density of unknown words would be 1 in 50 (98% coverage). As mentioned above, a critical factor is the vocabulary size of each individual learner, because that affects the density of unknown words in a text. Simplified texts should be used to come near to the optimal ratio. Studies on texts with higher density of unknown words have shown little successful guessing (Nation, 2001, 233). The number of occurrences and proximity of recurrences are also important. The more often and the closer the unknown word appears in a text, the greater the chance each clue will be integrated and the word meaning guessed correctly. Importance of the word is another relevant factor. If the word is crucial for the overall meaning, the learner will be more likely to make an effort to guess (Nation, 2001, 243).

2.2.2. Familiarity of the concept, concrete vs. abstract referents, amount of polysemy of unknown words

A concept already known will be easier to be guessed. Reading about a topic a learner is interested in is motivating in itself, and success in guessing only adds to it. If a student is not familiar with the concept, guessing will be difficult. Concrete unknown words are easier to be guessed, as are words that are not polysemous (Nation, 2001, 245). Nouns and verbs draw more attention and are more likely to elicit an attempt to guess the meaning (Paribakht and Wesche 1999 in Paribakht and Wesche 2010, 11).

2.2.3. Context and contextual clues

What can students learn while guessing from context? The unknown word may not represent merely an unknown label of a familiar concept, but sometimes even an unknown concept (new phenomenon) itself. In this case the new concept needs to be learned together with the new label, which is more difficult (Nagy, Anderson and Herman in Nation, 2001, 240). Although the word form and its meaning are important for “knowing” the word, students learn many other things from context such as the part of speech, its collocates, and the various forms the word can take. Some experimental evidence has shown that context helps word learning (Nation, 2001, 240-241).

Guessing from context is the most common strategy used in autonomous learning (Paribakht and Wesche in Webb and Nation, 2017, 204). The quality of context determines successful guessing. Well-chosen texts are able to provide rich context containing information about grammatical features, collocates, situation of use and fine aspects of meaning of the word (Nation, 2001, 242). These pieces of information are called contextual clues (or cues). They can be analysed and

classified, which provides a “manual”, a programme for learners to practice the skill of guessing. Nation (2001) summed up the features of context and contextual clues that influence the chances of a correct guess:

- Variability of contexts: Different contexts in which the word appears increase the range of clues.
- Presence of relevant clues: Some contexts offer clues, some do not.
- Proximity of relevant clues: The closer the clues are the more likely they will be used together.
- Number of relevant clues: The higher the number the easier the guessing.
- Explicitness of relevant clues: Synonyms within the text help guessing.
- Prior knowledge of the topic: Learners who are familiar with the topic, can use this knowledge when guessing.
- Familiarity of the referents: Familiar ideas in the clues are easier to guess (243-245).

Not all contexts are equal. Some contexts are misdirective – learners are prone to infer the opposite meaning; non-directive contexts offer no help for inferring; general contexts offer clues for a general, vague understanding of the word. Directive contexts lead to a specific, correct guess of meaning (Beck, McKeown and McCaslin in Webb and Nation, 2017, 234). However, Webb and Nation (2017) argue that even the most unhelpful contexts can offer initial steps in the right direction (235). It can be concluded that every encounter, every small step, every piece of vague knowledge is valuable in the inferencing process.

2.2.4. Classification of clues (cues)

There are many classifications of clues. Carton (in Haastrup, 1991; Nation, 2001) classifies them using three categories (Carton uses the term “cues”):

- Interlingual: Cues are based on transfer from L1 words or other languages (e.g. Latin).
- Intralingual: Cues based on knowledge of ESL.
- Contextual: Cues based on the text and knowledge of the world.

Haastrup (1991) builds on Carton’s classification. She divides contextual cues into context of situation and context of the world, although they might appear almost indistinguishable in practice (46). Co-text – the words surrounding an unknown word that provide context, in other words the linguistic environment of a word – influences the interpretation of linguistic context of an unknown word, which is considered to be context sensitive. Low-proficiency students are predicted to use less of the wider co-text and more of the immediate co-text, because wider co-text requires cohesion and coherence, which only advanced students are expected to use as cues. Knowledge of the world is seen as part of socio-cultural knowledge. While inferring, learners establish their guess based on their past experience as well as knowledge. Inferred meaning of an unknown word may seem reasonable or logical. Students can also use interlingual transfer when guessing using their own L1 or other familiar languages. They can use similarities in phonology, orthography, morphology, lexis, collocations or semantics. Transfer is generally easier between related languages. Intralingual clues may come from the unknown word itself or the syntax of the sentence (Haastrup, 1991, 47-50, 92-94).

Oxford (1990) distinguishes linguistic clues and other clues. Linguistic clues are provided by previously gained knowledge of the target language (ESL), the learner's own language or some other languages. Suffixes, prefixes and word order are among the most useful clues when guessing. In addition to clues coming purely from knowledge of language, there are other clues, some of which are related to language: important sources of clues are the text structure, introduction, summaries, conclusions, titles, phrases, numbers and proper nouns. Some go beyond the boundaries of language: graphs, pictures and tables. Good readers make use of other prominent clues such as general background knowledge, cultural knowledge and knowledge of the topic, current affairs, art, politics and literature. (90-93).

The most methodical system of context clues was created by Ames (in Nation, 2001). Ames's categories include:

- words in a series: the sonnets and *plays* of William Shakespeare
- modifying phrases: he *slashed* her repeatedly with a knife
- familiar expressions: expectation was written all over their *faces*
- cause and effect: He reads not for fun but to make his conversation less *boring*.
- association: All the little boys wore short *pants*.
- referral clues: Sweden 15.3 etc. These *statistics* carry an unpleasant message.
- synonym clues: it provokes, and she *provokes* controversy
- definition and description: some looked alive, though no *blood* flowed beneath the skin

- preposition: He sped along the *freeway*.
- question and answer: Now, what about *writing*...?
- comparison or contrast: Will it be a blessing or a *bane*?
- main idea and detail: I soon found a *practical* use for it. I put orange juice inside it.
- non-restrictive clauses: 24 hours – *hardly* a significant period of time (242-244).

2.3. Causes of poor guessing

Let us assume we have all the favourable prerequisites for guessing: a simplified text for the learner's specific level, rich with a variety of contextual clues, the learner has a broad vocabulary, good reading skills, a fair knowledge of the world, intelligence and motivation to attempt guessing. What could be the reason for a faulty guess? The primary difficulty learners face when guessing is the form of the word. Many wrong guesses originate due to formal resemblance of a known word with an unknown word (Laufer and Simm in Nation, 2001). Words that are similar to a learner's first language present another problem. This phenomenon is called "false friends" (for example, *chef* vs. *boss* or *café* vs. *coffee*, words commonly mistaken among Czech students). Therefore a strategy solely to rely on form could be misleading; in general it appears the best strategy is to let context clues guide the guess (Nation, 2001, 247).

In spite of these efforts, learners can fail to guess the appropriate meaning not only due to a lack of contextual clues, but also an inability to decode the clue or

unfamiliarity of the concept. Decoding clues is the main focus when teaching learners to use inferencing.

3. Learning through inferencing

3.1. Gradual process of inferencing

Learning through guessing meaning is an accumulative process. Learners develop their knowledge of a word gradually. Words that are consciously guessed are more likely to be retained. Noticing is the first requirement of learning. Another major condition is repetition, although some evidence shows that learning can occur after a single encounter. Nevertheless, the quantity of input plus variability of context are critical factors. Subsequent to the first encounter, every opportunity to guess again can evoke partial or full retrieval of information gained from previous encounters. The ability to make a connection between present and past contexts has an impact on successful guesswork. (Webb and Nation, 2017, 94).

Any small steps on the journey to understand meaning are valuable. Even if the learner does not attempt the guess, (because, for example, the unknown word is not essential for an overall understanding of the text), even then, a simple awareness of the word is valuable, since it is likely to garner some attention next time, possibly in a different context. With the first encounter, although the meaning is still unclear or vague, the learner may recognise a word class, topic, prefixes and suffixes or collocation with known words. Therefore learners must be complimented for any small positive step towards knowledge of the meaning of the word in question. Cobb (in Paribakht and Wesche, 2010, 16) suggests six to ten encounters with a word is required to ensure retention.

3.2. Benefits of inferencing

A feeling of success is strong motivation for further attempts at guessing. As mentioned above, even though incidental vocabulary learning through guessing is a slow and incremental process, students will gradually improve their inferencing skills which might increase their motivation and rid them of the fear of making errors. The fear of making errors might be one of the reasons why students are often reluctant to speak (productive skills). It may be assumed that losing the fear of making errors in receptive skills (through game-like guessing) might positively influence the fear of speaking. Therefore, guessing is essential for reading. It helps learners shake off the idea that they have to know every single word to comprehend the overall meaning (Oxford, 1990, 90). Small steps encourage a flexible approach towards language learning, and motivation to finally elicit accurate meaning, or at least rough, though overall correct meaning of a word. A study by Gu and Johnson (in Nation, 2001, 227) shows strong correlations between learners deciding what vocabulary to pay attention to, what they see as important and what not, and their responsibility for learning.

Incidental vocabulary learning through guessing is, however, just one of several routes to learning vocabulary. Although the process is much slower than direct and deliberate learning it can also improve grammatical knowledge, help understand text structures, improve reading skills, and help learners to enjoy reading and generally feel positive about learning the language.

There is a hypothesis (Cairns, Cowart and Jablon in Nation, 2001, 239) that words are more likely to be remembered if their acquisition requires effort. Difficulty in interpreting, increased effort and attention to a word result in stronger memory

trace (Haastrup in Nation, 2001, 239). In other words, the more effort exerted, the more memory is retained. More elaborate processing of new lexis will lead to higher retention (Hustijn in Paribakht and Wesche, 2010, 17). This is a strong argument for encouraging students to guess. This hypothesis is supported by the following arguments borrowed from psychology: it is “*taken for granted that intake and storage are closely linked – in psychological terminology this is called the effect of encoding on retention*” (Haastrup, 1991, 29). Furthermore, inferencing procedures involve depth of processing, mental elaboration and distinctiveness of encoding which are associated with high levels of retention (Craik and Lockhart in Haastrup, 1991, 29). However, more research into the hypothesis that words acquired through inferencing are better retained than words required through presentation is yet to be performed since most of the research is (for practical reasons) focused on short-term memory (Paribakht and Wesche, 2010, 17). Learning vocabulary is a long and gradual process influenced by many factors, requiring different encounters with a word. The study of long-term retention on a specific group of learners would be extremely complicated. What can happen during the process of inferencing? Learners may connect the form of an unknown word to its meaning, notice the different forms of the word (its derivations), its grammatical functions and collocations (Webb and Nation, 2017, 93).

3.3. Top-down and bottom-up approaches

Different approaches to guessing can be used. The top-down approach concerns guessing based mainly on background knowledge. Learners can use their knowledge of the topic, the concept and a general knowledge of the world. They infer a meaning that “fits”, which represents a logical filling of a gap. This deductive

approach is more suited to younger learners since their analytical thinking is not so advanced. The inductive or bottom-up approach is therefore more suitable for learners who are more advanced in analytical thinking, and who are more familiar with various linguistic clues (prefixes, suffixes, roots, word classes, parts of speech). Although a correct guess is more likely to evolve from using context clues rather than word-part analysis (Nation, 2001, 257), some argue that such top-down deduction is less likely to result in retention of the word and its meaning because the learner's attention is not on the word itself but rather on the overall meaning of the message (Haastrup in Webb and Nation, 2017, 94; Nation, 2001, 257). Nevertheless, this notion is not supported by subsequent research (Webb and Nation, 2017, 94), and for this reason, more research would be necessary. Even a partially correct guess or vague idea of the meaning is an important part of the learning process, supported by repeated encounters in various contexts.

Clarke and Nation (in Webb and Nation, 2017, 257) suggest the following steps are used as an inductive bottom-up approach.

- Step 1. Determine the part of speech of the unknown word.
- Step 2. Analyse the immediate context to try to determine the meaning of the unknown word.
- Step 3. Analyse the wider context to try to determine the meaning of the unknown word.
- Step 4. Guess the meaning of the unknown word.
- Step 5. Check the guess against the information that was found in the first four steps.

Guessing based on language clues and intralingual clues presents one advantage: linguistic clues exist in every context while background clues may not. The procedure evolves from a narrow focus on the word to a broader view. The learner's attention is on an unknown word and its immediate context – the clause containing the word – where the learner can find the most clues needed to infer the word meaning correctly (Nation, 2001, 258). An insufficient level of grammar can complicate correct guessing from clues in the clause. Final checking by substituting the word with a guess considers the wider context.

The deductive approach is outlined in the following steps (Button, Samuda in Nation, 2001, 259):

- Step 1. Guess the meaning of the word.
- Step 2. Justify the guess using a variety of clues.
- Step 3. Readjust the guess if necessary.

The advantage of this approach is that it becomes a “game”, using fantasy and intuition and it can work well as group activity (Nation, 2001, 259).

In reality, when guessing, learners often combine both approaches, and there is no need to follow a rigid procedure, but learners should be familiar with a variety of clues and should cultivate the skills to use them.

3.4. Practical examples of inferencing strategies

All examples are taken from *White Fang*, the novel by Jack London, using the simplified text by Castle and Sage.

3.4.1. Use of background knowledge (outside the text)

Guessing based on general, background or cultural knowledge depends on the general level of education and the general view of the world of each learner.

*But the man who loved the dog fights more than any other was 'Beauty' Smith. He would run down at the first sound of the steamship's **whistle** (70).*

Knowledge of the fact that steamships and steam engines make a sharp sound, or *blare*, can help infer the meaning of the word *whistle*.

3.4.2. Use of context outside the sentence with an unknown word

Often the meaning is possible to deduce from the information in the text, around the sentence, where the unknown word appears.

*The day came that the little cub finally went through the wall of the light which was the entrance to the cave. He was growing up and he simply had to know what lay **beyond** (30).*

Situational context and imagination help to make a guess that *beyond* means on the other side. It is similar to *behind*, which would also fit the meaning of the situation.

3.4.3. Use of context within the sentence with an unknown word

Most of the context clues are found within the sentence where the unknown word appears, the proximity with the unknown word making it easier to use them.

*Running with her (she-wolf) was her new **mate**, an old battle-scarred wolf with one eye (22).*

Context in the sentence provides clues that the she-wolf was running with another wolf (male). The meaning *partner, fellow, companion* can be inferred.

3.4.4. Use of word-part analysis of an unknown word

Prefixes, suffixes, roots and endings can help estimate not only the word class, but also the approximate (or accurate) meaning.

*When she returned she was **overjoyed** to find him safe to punish him (34).*

Learners, even at very early stages of learning, are usually familiar with the preposition *over* (here used as prefix). The same goes for the noun *joy*. They can also identify the ending *-ed*, which here indicates an adjective – a similar category of adjectives such as *tired, bored, amazed, charmed* which are formed from verbs (participial adjectives). Learners just need to add it all together and infer that it means to be filled with great joy, to *rejoice*.

3.4.5. Use of association or collocation with an unknown word

Using the similarity of various collocations can also help to infer.

*Grey Beaver never petted him again, but he sometimes threw him a **hunk** of meat, and shooed away the other dogs if they tried to steal it (62).*

Chunk of meat or *piece of meat* are similar collocations which may be used to infer the correct meaning.

3.4.6. Use of syntax knowledge

*Beauty **chained** White Fang in a pen so he could hardly move (74).*

The position of the word *chained* indicates that it is a transitive verb with an object (*White Fang*) resulting in the fact (*so...*) that White Fang was deprived of movement. The root *chain* and ending *-ed* can be recognised in the unknown word, but even if it could not, the approximate meaning of *bind*, *tie* or *strap up* could be inferred.

3.4.7. Use of visual or auditory similarities with an unknown word

Sometimes words look similar to words with similar meanings, or they sound like the sound the word describes.

*At that moment, more **shrill** wolfish cries ripped the air (10).*

The word *shrill* appears similar to *shriek* which in turn is similar to *screech* or *squeak*. An adjective describing a sharp squeal that pierces the air can be guessed.

3.4.8. Combining the clues

During the inferencing process all the available clues are combined. It is always possible to determine word class and function, and to analyse the unknown word itself, but the usefulness of such analysis for a particular learner can vary. Such a bottom-up approach can be combined with a top-down approach – simply just trying to find a word that would fit the context.

*Dog fighting was against the law in that town, and so Beauty would take him (White Fang) into the woods at night. Men brought their most **ferocious** dogs to challenge “The Fighting Wolf”. It was a savage land, and the fights were to the death (78).*

To guess the meaning of the word *ferocious* we can use several clues: it is the superlative form of an adjective (*most*); suffix *-ious* indicates “possessing” some

characteristic (*glorious, atrocious, obvious*). The situational context indicates the meaning *the most wild, the most cruel, the most unmerciful* (they fight to the death).

4. Helping students use inferencing

Although native speakers of L1 know a great many words (active and passive vocabularies can range between 40, 000 and 200, 000 words), they were only specifically and intentionally taught a small percentage of these words. The rest was “picked up”, guessed along the way, heard in specific situations and in varying contexts. Young L1 learners are satisfied when they get an approximate meaning that makes sense: they are motivated by the need and determination to understand. Using the same process – guessing the meaning – for vocabulary acquisition of L2 could also be motivational. It should be encouraging, since learners can then be their own teachers (Wallace, 1988, 33). When exposed to a real situation they would not panic and would know what to do, and they could enjoy different activities without the frustration of a lack of vocabulary. Therefore, teachers should help learners to use inferencing by teaching them specific inferencing strategies.

4.1. Choosing the text to infer from (quality of context)

Teachers should keep learners motivated by choosing the right text for their age, cultural background, and making sure that it is a text that will interest them. Motivation seems to be very important. Students must be aware that their guess may be wrong or just approximate and that that is all part of the process.

The length of text is not the decisive factor for successful guessing since most of the clues are found in the immediate context of an unknown word (Nation, 2001, 258). Unlike inferring while listening – when the spoken language is continuous, the speaker may use liaison, some words may be pronounced differently, with regional accents, all of which requires fast processing of information (Van Zeeland, 2014,

1009) – reading poses an advantage: learners can read and reread the text, taking their time to search for clues and process the information.

Well chosen texts are rich with contextual clues, they provide information about grammatical features of the (unknown) word, typical collocates, the text provides many situations the word is used in, and many finer aspects of the meaning (Nation, 2001, 242). As mentioned above, quality texts should contain at least 95-98% of familiar words to avoid frustration (Nation, 2001, 233).

4.2. Encouraging learners to read (quantity of input)

The quantity of encounters with the unknown word – the input – is the key factor for learning and remembering meaning. Guessing meaning seems to be a sub-skill of reading. Good guessers are generally good readers. It may be that guessing helps vocabulary learning because it encourages learners to pay attention to vocabulary items (Nation, 2001, 250). Reading is an important part of L2 learning. It provides mental stimulation, enhances knowledge, expands vocabulary and it is enjoyable too.

4.3. Teaching learners specific inferencing strategies

Training in guessing from context helps to improve guessing skills. Although most of the research was performed with L1 learners, it can be assumed that the same applies to L2 students.

Learners will never learn every word, every meaning, or every collocation, so teachers should find time in class to teach guessing strategies. Low-frequency words are good material for learning by guessing meaning. Teachers can choose from

a range of different options when designing strategy development activities. Nation (2001, 223) outlines them as follows:

- The teacher models the strategy for the learners.
- The steps in the strategy are practised separately.
- Learners apply the strategy in pairs supporting each other.
- Learners report back on the application of the steps in the strategy.
- Learners report on their difficulties and successes in using the strategy outside class time.
- Teachers systematically test learners on strategy use and give them feedback.
- Learners consult the teacher on their use of strategy, seeking advice where necessary.

Thornbury (2002, 148) recommends specific steps for guessing from context (the bottom-up approach):

- Step 1. Identify the part of speech of the unknown word (noun, verb, adjective, etc.). The position of the word in the sentence might guide you, as well as verb endings (*-ed*, *-ing*).
- Step 2. Look for further clues in the word's immediate collocates (articles of nouns suggesting countable or uncountable nouns, objects of verbs).

- Step 3. Look at the wider context, including the surrounding clauses and sentences – especially if there are “signposting” words, such as *but*, *and*, *however*, *so*, that might give a clue as to how the word is connected to its context. Example: *We got home tired, but elated*: the presence of *but* suggests that *elated* is not similar in meaning to *tired* as in comparison to: *We got home tired and downhearted*.
- Step 4. Look at the form of the word for any clues as to meaning. Example: *downhearted* is made up of *down* + *heart* + a participle affix (*-ed*).
- Step 5. Make a guess as to the meaning of the word, on the basis of the above strategies.
- Step 6. Read on and see if the guess is confirmed; if not – and if the word seems critical to the understanding of the text – go back and repeat the above steps. If the word does not seem critical, carry on reading. Maybe the meaning will become clearer later on.
- Step 7. When all else fails, consult a dictionary.

Wallace (1988, 52) presents a practical example of working with a text. He instructs teachers first to establish an overall understanding of the main information in the text and determine the main points. Only then are learners asked to infer the meaning of individual unknown words, which he divides into five categories:

- words that can be inferred from context

- words in the same semantic field which may be related and discussed together
(e.g. *terrible / appalling*)
- words which can be taught through related forms (e.g. *prospect / prospector*)
- words having a common literal sense which are used metaphorically
(e.g. *biting*)
- words and idioms that can be interpreted by analysing their internal structure
(e.g. *unquestionably*)

The teacher asks learners specific questions, thereby leading them and helping them to infer, and directing their attention to contextual and other clues. Through analysing contextual and linguistic clues, and by drawing learners' attention to them, teachers teach learners how to use a guess.

Kruse (in Nunan, 1991) makes five suggestions for teaching derivation of meaning of vocabulary from context:

- Building on the ability to recognise component parts of words, prefixes, suffixes and roots, word families. This reduces the number of completely new words learners encounter.
- Pictures, diagrams and charts must frequently be pointed out to EFL learners and used for inferencing.
- Learners must be taught to notice any type of definition clues (parentheses, footnotes, synonyms, antonyms, appositive clause constructions: *that is...*, *which is...*).

- The skill to infer clues from discourse, not confined to one sentence: example clues (i.e., e.g.), summary clues, experience clues (recalling similar situations)
- The use of general aids, which do not help with specific meaning, but which can narrow down possibilities (function words in questions, etc) (121).

PRACTICAL PART

Objective: the objective of this thesis is to establish the extent to which teachers in lower-secondary schools in the Czech Republic teach inference in their classrooms.

The general hypothesis: teachers in Czech lower-secondary schools encourage learners to use inferencing intuitively.

The operational hypotheses: the type of school may influence teachers to use inference in a class. Group size may influence teachers to teach inferencing in class. Teaching experience may be relevant for teachers encouraging inferencing in class.

5. To what extent do Czech teachers at lower-secondary schools encourage learners to use inference?

Learners of ESL at lower-secondary schools are at an age when they are not limited to English language input only from a school environment. A significant number of them play computer games, watch videos or films on streaming service websites, or they listen to songs, all in English. These learners usually improve their English comprehension and output rapidly. Teaching inference to younger learners before they gain substantial vocabulary would be fruitless. However, lower secondary learners can benefit from introducing this strategy of vocabulary learning. This is the reason why lower-secondary schools have been chosen for this research. No previous studies or papers that deal with the extent of using inference in Czech schools have been found.

5.1.Method of research

The study was carried out in two phases. The first phase was guided by my own teaching experience and preliminary informal interviews with a number of ESL teachers. These interviews indicated that teachers mostly use inference instinctively. Sometimes it was only during the interviews they learned the terms “inference” and “inferencing strategies”. However, they generally understood the concept, and they were aware of some of the benefits from their own teaching practice. These interviews helped to set the hypotheses and the survey questionnaire.

The second phase focused on the survey, data collection and analysis. The questionnaire was initially tested for content validity. Comprehensibility and logical coherence were tested on a small number of respondents which resulted in the addition of a few specific examples of contextual and linguistic clues. An on-line survey questionnaire was created using the on-line tool survio.com.

The research methods were of quantitative-qualitative design. Most of the questions were of quantitative design. They were analysed using the methods of descriptive statistics – measures of frequency: count and percent. Comparative statistics were used to analyse relations between the answers. One open question (13) was analysed using qualitative content analysis.

5.1.1. Participants

54 ESL teachers teaching at lower-secondary Czech schools contributed to the survey. They were approached and asked to participate on social network teachers groups: the Facebook groups “Učitelé+” and “Učitelé angličtiny sobě”, in addition to

a large number of direct emails were sent to many lower-secondary schools. Email addresses were obtained from open sources using the Google search engine.

5.1.2. Data collection

The survey questionnaire started with a short explanation to introduce the topic. The introduction was followed by a set of 15 questions. Questions 1-6 focused on establishing the background knowledge of each participant, their teaching experience and general knowledge or inference. Questions 7-12 focussed on the use of specific inferencing strategies. Question 13 was the only open question in which teachers could elaborate on their knowledge of the benefits of inferencing. Questions 14 and 15 asked about teacher's willingness to learn more about inferencing. The responses to these questions could be useful for my intention for a future project: to prepare practical materials for teachers to be used in class to teach inferencing strategies.

5.2. Analysis and results

5.2.1. Question 1: The school where you teach

90.7% of teachers (49) teach at standard lower-secondary public schools (including public grammar schools; students aged 12-15). The number of teachers from alternative schools was insignificant for any further conclusions. The initial assumption (one of the operational hypotheses) that in alternative schools teachers might be open to innovative methods of teaching and therefore might be more likely to use inference could not be proven. If this particular hypothesis was to be investigated further, targeted data collection methods should be used.

Table 1: The school type

The school were you teach	Number	%
Standard public lower secondary school	49	90.7%
Alternative private lower secondary school	3	5.6%
Community school (out of the system) – lower secondary students	1	1.9%
Alternative public lower secondary school	1	1.9%

5.2.2. Question 2: The size of group you usually teach (choose the group where you teach the most lessons)

29 teachers (53.7%) teach groups sized 13-18 students. Only one person teaches in a very small group (1-6 students (1.9%)). 16 teachers (29.6%) teach groups sized 7-12 students and 8 teachers (14.8%) teach groups sized more than 19 students. It was surprising to learn that the number of teachers teaching in large classes is not inconsiderable. In the data analysis the relation between group size and teaching students to infer will be examined.

Table 2: Group size

The size of the group you usually teach (choose the group where you teach the most lessons)	Number	%
13-18 students	29	53.7%
7-12 students	16	29.6%
19 and more students	8	14.8%
1-6 students	1	1.9%

5.2.3. Question 3: Experience in teaching (in years)

Most of the teachers, 28 (51.9%), had over 9 years' teaching experience. 16 teachers (29.6%) had between 4 to 8 years' teaching experience and 10 teachers (18.5%) had less than 4 years' teaching experience. The relation between teaching experience and the teaching of inference in class will be determined in the following analysis.

Table 3: Teaching experience

Experience in teaching English (in years)	Number	%
9 and more	28	51.9%
4-8	16	29.6%
1-3	10	18.5%

5.2.4. Question 4: Knowledge of inferencing (guessing the meaning)

Only 11 teachers (20.4%) stated a "fair knowledge" of the topic and 21 teachers (38.9%) "have heard" about it. However, 22 teachers (40.8%) did not know much or nothing at all about the topic.

Table 4: Knowledge of inferencing

Knowledge of inferencing (guessing the meaning)	Number	%
I have heard about it.	21	38.9%
I have heard about it, but not much.	13	24.1%
I have a fair knowledge of it and I have also learned various strategies of inferencing.	11	20.4%
I have never heard about it, but it occurred to me.	5	9.3%
I have never thought about it, I have never heard about it.	4	7.4%

5.2.5. Question 5: Use of inference in your daily life when reading or listening in English

44 teachers (81.5%) used inferencing in their daily life intuitively, and their strategies are also intuitive. 7 teachers (13%) used inference deliberately and only 3 teachers (5.6%) did not use it at all.

Table 5: Use of inference in daily life

Use of inferencing in your daily life when reading or listening in English	Number	%
I use it, but only intuitively. My strategies are intuitive.	44	81.5%
I use it intentionally and purposely. I am aware of strategies.	7	13.0%
I do not use it. I would rather find the meaning of a word elsewhere.	3	5.6%

5.2.6. Question 6: Use of inferencing in a class

30 teachers (55.6%) intentionally encourage students to guess meaning, 3 of them (5.6%) teach students various strategies, 19 teachers (35.2%) do it intuitively, 5 teachers (9.3%) do not use it in class.

Table 6: Use of inference in class

Use of the inferencing in a class	Number	%
I intentionally encourage students to guess the meaning.	27	50.0%
I intuitively encourage students to guess the meaning.	19	35.2%
I do not use it in my class.	5	9.3%
I intentionally encourage students to guess the meaning and I also teach students various inferencing strategies.	3	5.6%

5.2.7. Question 7: Use of contextual clues outside the text (use of cultural or general knowledge or knowledge of the topic or concept)

Example:

*Mark ran out of the forest and found himself at the edge of a **precipice**. He stood there, holding himself to a boulder, dizzy from looking at the wild river down in the valley.*

*A **precipice** must be at the edge, very high up (dizzy from looking down).*

A boulder is a large stone, usually in the mountains.

31 teachers (57.4%) intuitively encouraged students to use these clues, 17 (31.5%) practiced them intentionally and 6 teachers (11.1%) did not encourage students to use them.

Table 7: Use of contextual clues outside the text

Use of contextual clues outside the text (using cultural or general knowledge or knowledge of the topic or concept)	Number	%
I intuitively encourage students to use it.	31	57.4%
I intentionally teach students to use it.	17	31.5%
I do not encourage students to use it.	6	11.1%

5.2.8. Question 8: Use of contextual clues outside the sentence, where the unknown word appears

Example:

*John said: "I am starving." He was **famished** because he had not been eating since the morning.*

The unfamiliar word *famished* can be guessed using a clue from the previous sentence (the synonym *starving*).

31 teachers (57.4%) taught students to use these clues intuitively, 19 (35.2%) did it intentionally and only 4 teachers (7.4%) did not encourage students to use them.

Table 8: Use of contextual clues outside the sentence

Use of contextual clues outside the sentence, where the unknown word appears	Number	%
I intuitively encourage students to use it.	31	57.4%
I intentionally teach students to use it.	19	35.2%
I do not encourage students to use it.	4	7.4%

5.2.9. Question 9: Use of contextual clues within the sentence, where the unknown word appears

Example:

*My parrot was **loquacious**, but yours said very little.*

The unfamiliar word *loquacious* is in contrast (*but*) with the phrase *said very little*, the familiar synonym *talkative* can be guessed.

31 teachers (57.4%) taught using these clues intuitively, 18 (33.3%) used them intentionally and 5 teachers (9.3%) did not encourage students to use them.

Table 9: Use of contextual clues within the sentence

Use of contextual clues within the sentence, where the unknown word appears	Number	%
I intuitively encourage students to use it.	31	57.4%
I intentionally teach students to use it.	18	33.3%
I do not encourage students to use it.	5	9.3%

5.2.10. Question 10: Use of association or collocation (with the key word)

Example:

*The knight broke his **pledge** to John when he plotted against him and this way he broke his word.*

The words *break a pledge* could be guessed from the similar collocation *to break a promise* or *to break one's word*.

28 teachers (51.9%) intuitively taught students to use these clues, 16 teachers (29.6%) did it intentionally and 10 teachers (18.5%) did not encourage students to use these clues.

Table 10: Use of association or collocation

Use of association or collocation (with the key word)	Number	%
I intuitively encourage students to use it.	28	51.9%
I intentionally teach students to use it.	16	29.6%
I do not encourage students to use it.	10	18.5%

5.2.11. Question 11: Use of syntax knowledge (subject, verb or object position, position of adjectives and adverbials, conjunctions, relative or nominal clauses, etc

Example:

*The rays from the rising sun shined **splendidly** through my hotel window.*

The unfamiliar word *splendidly* is an adverb (suffix -ly), positioned after the verb, and it has a positive meaning. The synonym *wonderfully* can be inferred.

25 teachers (46.3%) encouraged students to use these clues intuitively, 20 teachers (37%) did it intentionally and 9 teachers (16.7%) did not encourage students to use them.

Table 11: Use of syntax knowledge

Use of syntax knowledge (subject, verb or object position, position of adjectives and adverbials, conjunctions, relative or nominal clauses, etc.)	Number	%
I intuitively encourage students to use it.	25	46.3%
I intentionally teach students to use it.	20	37.0%
I do not encourage students to use it.	9	16.7%

5.2.12. Question 12: Use of visual or auditory forms (similarity to with another word, using morphology – suffixes, prefixes, or endings such as -ed, -ing, similarity of a sound – onomatopoeia)

Example:

*Venomous snakes spit and **hiss** when they feel threatened.*

The unfamiliar word *hiss* sounds like the sound snakes make.

25 teachers (46.3%) taught students to use these clues intentionally; 24 teachers (44.4%) did it intuitively and only 5 (9.3%) did not encourage students to use these clues at all.

Table 12: Use of visual or auditory form

Use of visual or auditory forms (similarity to another word, using morphology – suffixes, prefixes or endings such as -ed or -ing, similarity of a sound – onomatopoeia)	Number	%
I intentionally teach students to use it.	25	46.3%
I intuitively encourage students to use it.	24	44.4%
I do not encourage students to use it.	5	9.3%

5.2.13. Question 13: Are you aware of the benefits of inferencing? If yes, please elaborate.

This was the only open question in the questionnaire. Teachers could express their knowledge of the benefits of inferencing. Some of them used this space to comment on inference in general.

8 teachers (14.8%) gave specific “No”, that they were not aware of any benefits. 4 teachers did not answer (7.4%). 11 teachers (20.4%) said “Yes”, but they did not elaborate. The rest of the answers (35) were assorted into categories:

- about learning vocabulary

“Inferencing is a great tool in the learning process; it helps pupils learn how to work with words that they know instead of memorising lists of words they will probably forget soon.”

“It obviously helps students understand and move forward in an unknown text. They do not have to look up all the words they don’t know. It enhances their vocabulary.”

“The best way to teach vocabulary in context followed up by active usage.”

- about comprehension

“It shows active involvement in learning a language, and helps to understand it more.”

“It helps students understand when information is implied.”

“Yes, better vocabulary knowledge and overall understanding of the text they are reading/working with, help with reading comprehension during individual reading.”

“It helps students understand the text without looking each unknown word up and after some time the new word becomes a part of the student's passive vocabulary.”

“It is the ability to get the gist without having precise knowledge of meaning.”

- about retaining vocabulary

“It makes students think about the unknown words; they can connect it to the words they already know. Therefore, they are more likely to remember the meaning.”

“It helps students to remember the new words more effectively.”

“If they have to figure out the word on their own they won't forget it so easily. They have connections and a better overview.”

- about positive approach to reading

“Reading comprehension, language awareness, students stop being afraid of new words.”

“Trying to look up all unknown words while reading means spoiling the pleasure of reading itself.”

- general comments

“It is one of the most useful and utilized strategies for ESL.”

“It is an essential thing; we come across it in everyday life.”

“I think it's a more effective way of learning and the students have to use their brains for once too.”

“We think about what we read or listen to. We try to understand, enlarge our vocabulary, and therefore our sense of a language. To look up the word is important for further details such as thesaurus, but for communicating, we need to be more determined and learn the language intuitively.”

- commenting on obstacles

“Yes, but it's hard to use it with the full class or when there are huge differences between the students' knowledge.”

The majority of teachers were aware of some of the benefits; many of them value inference as one of the most essential skills.

5.2.14. Question 14: Would you like to know more about inferencing and its benefits?

A majority of 37 teachers (68.5%) wanted to know more about inferencing, while 15 teachers (27.8) were not sure, and only 2 (3.7%) were not interested to learn more.

Table 13: Interest in inferencing

Would you like to know more about inferencing and its benefits?	Number	%
Yes, definitely.	37	68.5%
Maybe.	15	27.8%
No. I would not use it anyway.	2	3.7%

5.2.15. Question 15: Would you like to have ready-made material for use in class that would help you to teach students how to use inference?

41 teachers (75.9%) wanted to get prepared material to be used in class to teach students inferencing strategies, while 12 teachers (22.2%) were not sure. Only 1 teacher (1.9%) did not want to use the material in class. Most of the teachers were interested in getting materials to teach inference in class.

Table 14: Interest in teaching material

Would you like to have ready made material for use in class that would help you to teach students how to use inference?	Number	%
Yes, definitely.	41	75.9%
Maybe.	12	22.2%
No. I would not use it anyway.	1	1.9%

6. Comparative statistics

6.1. Does group size influence teaching inference?

Answers to Question 2 (group size) were examined and compared to other answers (Questions 6-12). While Question 6 examines use of inference in class in general, questions 7-12 examine usage of specific inferencing clues. Table 15 shows teaching of inference in general in different group size (Question 6).

Table 15: Teaching inference in class compared to the group size

Use of inferencing in class	Group size			
	1-6	7-12	13-18	19 and more
I do not use it in my class.	0%	0%	13.8% (4)	12.5% (1)
I intuitively encourage students to guess the meaning.	0%	50% (8)	34.5% (10)	12.5% (1)
I intentionally encourage students to guess the meaning.	6.25%	43.7% (7)	48.3% (14)	62.5% (5)
I intentionally encourage students to guess the meaning and I also teach students various inferencing strategies.	0%	6.25% (1)	3.4% (1)	12.5% (1)
Total number	1	16	29	8

The analysis considers only groups of 7-12 students and 13-18 students since the answers for groups of 1-6 students and 19 and more students were insignificantly small. In order to calculate the percentage the total number of answers in each group size has to be considered (16 and 29 respectively). In the group 7-12 students 8 teachers (out of 16), or 50% use inference intuitively while in the group 13-18 it is 34.5% (10 out of 29). Intentional teaching is about the same in both groups.

To establish whether group size does influence inferencing in class, questions concerning usage of specific inferencing clues (Questions 7-12) have to be

considered, for they have more significant data validity than the answers about general usage in Question 6.

Table 16: Teaching various inferencing strategies compared to the group size

QUESTION	Group size 7-12 (16 answers)				Group size 13-18 (29 answers)			
	INTUITIVE USE		INTENTIONAL USE		INTUITIVE USE		INTENTIONAL USE	
	Number	%	Number	%	Number	%	Number	%
Q7: Clues outside the text	10	62.5	6	37.5	17	58.6	8	27.6
Q8: Clues outside the sentence	11	68.8	5	31.3	17	58.6	9	31.0
Q9: Clues within the sentence	10	62.5	6	37.5	17	58.6	8	27.6
Q10: Association or collocation clues	11	68.8	4	25.0	15	51.7	7	24.1
Q11: Syntax clues	5	31.3	8	50.0	16	55.2	8	27.6
Q12: Visual or auditory clues	6	37.5	9	56.3	14	48.3	12	41.4

Table 16 demonstrates significant differences in answers for each group size. In smaller groups of 7-12 students teachers teach learners to use inference more often (both intuitively and intentionally) than in groups of 13-18. The reasons were not determined in this thesis. However, it can be assumed that time is the issue, which is supported by one of the answers to Question 13: *“it’s hard to use it with the full class...”*

6.2. Do teachers teach inference more intuitively or intentionally?

Table 17 shows differences in intuitive and intentional teaching. The answers to most questions (Question 7-10) reveal that teachers teach inference intuitively more often than intentionally. The only deviation was presented by the answers to Question 11 (Use of syntax clues) and Question 12 (Use of visual or auditory clues). The application of these clues requires focused, deliberate and intentional thinking

processes – sentence analysis or word analysis – which are more likely to be performed (as the results prove) in smaller groups.

The general hypothesis that teachers teach students inference intuitively rather than intentionally has been confirmed.

Table 17: Intuitive and intentional inference

QUESTION	INTUITIVE USE				INTENTIONAL USE			
	Group size 7-12 (16 answers)		Group size 13-18 (29 answers)		Group size 7-12 (16 answers)		Group size 13-18 (29 answers)	
	Number	%	Number	%	Number	%	Number	%
Q7: Clues outside the text	10	62.5	17	58.6	6	37.5	8	27.6
Q8: Clues outside the sentence	11	68.8	17	58.6	5	31.3	9	31.0
Q9: Clues within the sentence	10	62.5	17	58.6	6	37.5	8	27.6
Q10: Association or collocation clues	11	68.8	15	51.7	4	25.0	7	24.1
Q11: Syntax clues	5	31.3	16	55.2	8	50.0	8	27.6
Q12: Visual or auditory clues	6	37.5	14	48.3	9	56.3	12	41.4

6.3. Does teaching experience influence teaching students how to use inference?

One of the operational hypotheses was that inference is influenced by teachers' experience. It can be assumed that experienced teachers are more likely to teach inference. In order to proceed with analysis the total amount of answers in each group had to be considered. Table 18 shows that teachers with 1-3 or 4-8 years' experience teach inference mostly intuitively. The most experienced teachers (9 and more years) teach inference intentionally more often than teachers less experienced.

Table 18: Teaching experience and inference

QUESTION	TEACHING EXPERIENCE																	
	1-3 years (10 answers)						4-8 years (16 answers)						9 and more years (28 answers)					
	Inference not used		Inference used intuitively		Inference used intentionally		Inference not used		Inference used intuitively		Inference used intentionally		Inference not used		Inference used intuitively		Inference used intentionally	
Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	
Q7: Clues outside the text	1	10.0	6	60.0	3	30.0	4	25.0	9	56.3	4	25.0	2	7.1	16	57.1	10	35.7
Q8: Clues outside the sentence	1	10.0	7	70.0	2	20.0	2	12.5	11	68.8	3	18.8	1	3.6	13	46.4	14	50.0
Q9: Clues within the sentence	1	10.0	6	60.0	3	30.0	2	12.5	12	75.0	2	12.5	2	7.1	13	46.4	13	46.4
Q10: Association or collocation clues	2	20.0	7	70.0	1	10.0	2	12.5	11	68.8	3	18.8	6	21.4	10	35.7	12	42.9
Q11: Syntax clues	1	10.0	5	50.0	4	40.0	3	18.8	8	50.0	8	50.0	5	17.9	12	42.9	11	39.3
Q12: Visual or auditory clues	2	20.0	3	30.0	5	50.0	0	.0	9	56.3	7	43.8	3	10.7	12	42.9	13	46.4

Although there is some indication that teaching experience positively impacts on teaching inference, more research in this field should be done. More participants in each group of teachers could give clearer answers.

Conclusion

The categorization of inferencing as one of the compensation strategies can evoke an impression that to guess meaning may be some kind of imperfection, or defect, especially in a country known for pressure on performance and a competitive approach to education. However, it is exactly the opposite. All presented benefits of inferencing should guide us towards implementing inference in our classrooms on a daily basis. Guessing the meaning influences learners to retain vocabulary better, to be more motivated to read and even to enjoy reading more. According to Thornbury (2002) “*guessing from context is one of the most useful skills learners can acquire and apply both inside and outside the classroom*”. It is also relatively easy to implement in lessons. It is a skill we already use in our own languages, when we read and listen, when we engage with people (148). So there is no reason why it should not be taught more often.

This thesis attempted to look into inferencing and how this phenomenon is applied in Czech lower-secondary schools during language lessons. Since we all use inference daily even in our own mother tongue we are likely to use the same skill intuitively when learning or teaching a second language. The hypothesis examined in the practical part of this – that teachers teach students inferencing skills more intuitively rather than intentionally – has been proven to have a certain degree of validity. Whether the school type influences the extent of inferencing in classrooms could not have been determined, since the number of teachers from other schools than the standard public schools which took part in the questionnaire was insignificant. The group sizes that teachers teach has proven to have an influence on the use of inferencing in classrooms. In smaller groups, teachers teach inference

more often. The research indicates that intentional teaching of inferencing skills increases with teachers' experience. However, more thorough research would be needed.

In my opinion universities preparing future language teachers should emphasize the importance of inference during ELT Methodology lessons, so more teachers implement teaching inferencing skills intentionally.

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Web-sites with contextual clues practice, where the inspiration for some of the examples came from:

<https://studylib.net/doc/5413090/be-a-context-clues-detective->

<https://quizlet.com/336470419/synonym-and-antonym-context-clue-practice-flash-cards/>

List of appendices

Appendix 1: Questionnaire

Appendix 1

Questionnaire

Lexical inferencing

Questionnaire for lower-secondary school teachers

Dear teachers,

My name is Klara Hewitt and I hereby ask you for your kind assistance with my bachelor thesis concerning lexical inferencing. This questionnaire will be used to determine the knowledge and usage of lexical inferencing skills taught to students at lower secondary schools in the Czech Republic. Should you have any comments or questions about the questionnaire or the thesis itself, please do not hesitate to contact me at: klara.hewitt@tul.cz

When learning a foreign language learners are usually confronted by texts, both written and/or audio. In both cases they often encounter situations when insufficient vocabulary becomes an obstacle to understanding meaning. Apart from obvious help, such as looking up the unfamiliar words in a dictionary or asking someone for an explanation, learners can also use inferencing strategy – guessing the meaning.

There are two main groups of factors influencing the ability to guess meaning. The first relates to learners themselves – vocabulary volume, knowledge of the topic, grammar knowledge, proficiency, experience, attention to details, cognitive, mental and other abilities. The second group of factors is related to the text as such – the character of the text, the topic or the presence of contextual keys.

My bachelor thesis focuses on the methods on how guessing meaning can be used for vocabulary learning, what strategies can be used and also **the volume of using inference at lower secondary schools in the Czech Republic**. It is for the latter that I ask for your kind assistance. Please fill in the questionnaire as candidly as possible.

Thank you

1 The school where you teach

Question instructions: *Select one or more answers.*

- standard public lower secondary school alternative private lower secondary school alternative public lower secondary school community school (out of the system) – lower secondary students

2 The size of the group you usually teach (choose the group where you teach the most lessons)

Question instructions: *Select one answer.*

- 1-6 students 7-12 students 13-18 students 19 and more students

3 Experience in teaching English (in years)

Question instructions: *Select one answer.*

- 1-3 4-6 6-8 9 and more

4 Knowledge of inferencing (guessing the meaning)

Question instructions: *Select one answer.*

- I have never thought about it, I have never heard about it.
 I have never heard about it, but it occurred to me.
 I have heard about it, but not much.
 I have heard about it.
- I have a fair knowledge of it and I have also learned various strategies of inferencing.

5 Use of inferencing in your daily life when reading or listening in English

Question instructions: *Select one answer.*

- I use it intentionally and purposely. I am aware of strategies.
 I use it, but only intuitively. My strategies are intuitive.
 I do not use it. I would rather find the meaning of a word elsewhere.

6 Use of the inferencing in a class

Question instructions: *Select one answer.*

- I do not use it in my class.
 I intuitively encourage students to guess the meaning.
 I intentionally encourage students to guess the meaning.
 I intentionally encourage students to guess the meaning and I also teach students various inferencing strategies.

For the set of following questions some examples might be helpful:

Use of contextual clues outside the text (use of cultural or general knowledge or knowledge of the topic or concept)

Example:

*Mark ran out of the forest and found himself at the edge of a **precipice**. He stood there, holding himself to a boulder, dizzy from looking at the wild river down in the valley.*

A precipice must be at the edge, very high up (*dizzy* from looking down). A boulder is a large stone, usually in the mountains.

7 Use of contextual clues outside the text (use of cultural or general knowledge or knowledge of the topic or concept)

Question instructions: *Select one answer.*

- I intentionally teach students to use it.
 I intuitively encourage students to use it.
 I do not encourage students to use it.

Use of contextual clues outside the sentence, where the unknown word appears

Example:

*John said: "I am starving." He was **famished** because he had not been eating since the morning.*

The unfamiliar word *famished* can be guessed using a clue from the previous sentence (the synonym of *starving*).

8 Use of contextual clues outside the sentence, where the unknown word appears

Question instructions: *Select one answer.*

- I intentionally teach students to use it. I intuitively encourage students to use it. I do not encourage students to use it.

Use of contextual clues within the sentence, where the unknown word appears

Example:

*My parrot was **loquacious**, but yours said very little.*

The unfamiliar word *loquacious* is in contrast (*but*) with the phrase *said very little*. The familiar synonym *talkative* can be guessed.

9 Use of contextual clues within the sentence, where the unknown word appears

Question instructions: *Select one answer.*

- I intentionally teach students to use it. I intuitively encourage students to use it. I do not encourage students to use it.

Use of association or collocation (with the key word)

Example:

*The knight broke his **pledge** to John when he plotted against him and this way he broke his word.*

The words *break a pledge* could be guessed from the similar collocation *to break a promise* or *to break one's word*.

10 Use association or collocation (with the key word)

Question instructions: *Select one answer.*

- I intentionally teach students to use it. I intuitively encourage students to use it. I do not encourage students to use it.

Use of syntax knowledge (subject, verb or object position, position of adjectives and adverbials, conjunctions, relative or nominal clauses, etc.)

Example:

*The rays from the rising sun shined **splendidly** through my hotel window.*

The unfamiliar word *splendidly* is an adverb (suffix -ly), positioned after the verb, and it has a positive meaning. The synonym *wonderfully* can be inferred.

11 Use of syntax knowledge (subject, verb or object position, position of adjectives and adverbials, conjunctions, relative or nominal clauses, etc.)

Question instructions: *Select one answer.*

- I intentionally teach students to use it. I intuitively encourage students to use it. I do not encourage students to use it.

Use of visual or auditory forms (similarity to another word, using morphology – suffixes, prefixes or endings such as -ed or -ing, similarity of a sound – onomatopoeia)

Example:

*Venomous snakes spit and **hiss** when they feel threatened.*

The unfamiliar word *hiss* sounds like the sound snakes make.

12 Use of visual or auditory forms (similarity to another word, using morphology – suffixes, prefixes or endings such as -ed or -ing, similarity of a sound – onomatopoeia)

Question instructions: *Select one answer.*

- I intentionally teach students to use it. I intuitively encourage students to use it. I do not encourage students to use it.

13 Are you aware of the benefits of inferencing? If yes, please elaborate.

Question instructions: *(open question, you can write in Czech if preferred)*

14 Would you like to know more about inferencing and its benefits?

Question instructions: *Select one answer.*

- Yes, definitely. No. I would not use it anyway. Maybe.

15 Would you like to have ready made material for use in class that would help you to teach students how to use inference?

Question instructions: *Select one answer.*

- Yes, definitely. No. I would not use it anyway. Maybe.

Thank you for your participation in this questionnaire.

Should you like to contact me, please write me at klara.hewitt@tul.cz