

Abstract

A quantitative study was conducted with a group of twenty-six Norwegian upper secondary students and a group of twenty-six Norwegian university students. Both groups were tested for English proficiency and idiom comprehension. A third group of English native speakers was also given the idiom tests, to judge whether the tasks and idioms were appropriate. The idiom comprehension tests were divided into two parts. In one they would respond to written alternatives, in the other they would respond to image alternatives. The study also gathered information about metalinguistic awareness through two proficiency tests, one testing for vocabulary size, the other for grammatical skills, as well as exposure to English, gathered through a survey. The study aimed to compare these results in order to find predictors for idiom comprehension through correlations between the different types of exposure and metalinguistic proficiency, and measure it against the results of the idiom tests. The results show that grammar was the strongest predictor of those tested, and provides evidence that metalinguistic proficiency seems to have a positive correlation with idiom comprehension in L2 speakers. The results for exposure, however, are inconclusive.

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Aurland, Anders Hauge

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Preface

Idioms, being linguistic constructs with figurative meanings often not related to their literal interpretations, are important for learning language. In order to become an accomplished L2 user of language, a second language learner needs to be able to understand the nuances and intricacies of the language they are trying to attain. Figurative language comprehension is crucial to attaining high levels of L2 proficiency.

As a future teacher, I want to inspire my future pupils to become proficient in English. A good way of doing this may be by using idioms to spur interest among them. In many cases, figurative language can be highly entertaining, and it is my belief that the use of idioms in the classroom can be a way to inspire children and adolescents to find a love for language.

This thesis examines the existence of predictors to idiom comprehension. Through writing it, I have looked at different models of comprehension, processing and acquisition of figurative language. I have also studied idioms, looking at different aspects of them, how they work, and studied the different dimensions idioms move within, looking at compositionality, familiarity, predictability and literality. (Titone & Connine, 1994) By using the information gained from this study, using tactics that incorporates these predictors into my teaching, I, believe that I will be able to better help my future students in becoming proficient in comprehension of idiomatic expressions and other forms of figurative language.

Table of contents

1. Introduction.....	1
2. Theoretical Framework.....	3
2.1 The peculiarity of idioms.....	3
2.2 Idiom comprehension and processing.....	3
2.2.1 Compositional or non-compositional.....	3
2.2.1 Comprehension theories.....	4
2.2.2 Different kinds of idioms.....	5
2.2.3 L2 idiom comprehension.....	7
2.3 Predictors for idiom acquisition.....	7
2.3.1 Age as a factor.....	7
2.3.2 Exposure as a factor.....	8
2.3.3 Context as a factor.....	8
2.4 Predictors for idiom comprehension.....	9
2.4.1 Metalinguistic awareness.....	9
2.4.2 Reading comprehension.....	9
2.4.3 Language Learning Strategies.....	10
2.5 Hypotheses and predictions.....	11
3. Methods.....	13
3.1 Participants.....	13
3.1.1 L2 users.....	13
3.1.2 Native speakers.....	14
3.2 Materials and Procedures.....	14
3.2.1 Proficiency Tests.....	14
3.2.2 Idiom Test.....	15
3.3 Analysis.....	19
3.3.1 Background forms.....	19
3.3.2 English Proficiency Tests.....	19
3.3.3 Idiom test.....	19
3.3.4 Testing for predictors.....	20
3.4 Potential sources of error and limitations.....	20
4. Results.....	23
4.1 The proficiency tests.....	23

4.2 The idiom tests	24
4.3 English exposure	27
4.4 Predictive analysis	28
5. Discussion	33
5.1 The native speakers	33
5.2 The proficiency tests	34
5.3 The idiom tests	34
5.4 The exposure data	35
5.5 The prediction analysis	35
5.6 General discussion	37
6. Conclusion	39
List of references.....	41
Appendices.....	43
Appendix 1: Consent form.....	43
Appendix 2: Background questionnaire.....	45
Appendix 3: Idiom tasks with written alternatives	51
Appendix 4: Idiom tasks with image alternatives.....	57
Appendix 5: Image idioms omitted due to high complexity images	87
Appendix 6: Native speaker results	93
Appendix 7: Results of English Exposure-part of background form.....	95

Table of figures

<i>Figure 1: Written idioms test example</i>	16
<i>Figure 2: Image idioms test example</i>	17
<i>Figure 3 and 4: Boxplot – correct responses to the left and distractor responses to the right – by both groups with both stimuli.....</i>	25
<i>Figure 5: Boxplot of literal responses by both groups with both stimuli</i>	25
<i>Figure 6: Predictors for written idiom task upper secondary students</i>	28
<i>Figure 7: Predictors for image idiom task upper secondary students.....</i>	29
<i>Figure 8: Predictors for written idiom task university students</i>	29
<i>Figure 9: Predictors for image idiom task university students.....</i>	30
<i>Figure 10: Predictors for written idiom task all participants</i>	30
<i>Figure 11: Predictors for image idiom task all participants</i>	31

Table of tables

<i>Table 1: Grammar and vocabulary tests by mean standard deviation.....</i>	<i>23</i>
<i>Table 2: Idiom test accuracy.....</i>	<i>24</i>
<i>Table 3: ANOVA</i>	<i>26</i>
<i>Table 4: Mean values of answers given in English exposure questionnaire</i>	<i>27</i>

1. Introduction

Idioms are linguistic constructs that denote meaning other than their literal interpretation, and they are far more abundant and their usage far more frequent than one would assume. There are many different kinds of idioms. Some are transparent, carrying figurative meanings that are nearly identical to their literal interpretation. Others are opaque, having figurative meanings so far from their literal interpretations their nature are impossible to derive by syntactic analysis.

Seeing as idioms are so different in nature, it is interesting to see how we process them, as well as how we acquire them, and the knowledge needed to comprehend them. In this study I will look at *predictors* for idiom comprehension; factors that can predict a person's ability to comprehend idioms. For the most part, this study will focus on metalinguistic capabilities and exposure.

This thesis consists of a theoretical framework for idiom comprehension and acquisition, as well as a look into other studies on predictors to see what has been done before. Following that comes a summary of the experimental aspect of the study, and a presentation of the results of these experiments. These results are then analysed and discussed in order to reach a conclusion in the final chapter.

All experiments in this thesis have been comprised and created by two students of English in the Teacher Training Program at NTNU. We have worked thoroughly and meticulously in order to make them as comprehensive and flawless as possible.

2. Theoretical Framework

2.1 The peculiarity of idioms

Idioms are a peculiar sort of linguistic constructions. Having a meaning that is often indecipherable by merely analysing them, they are often grouped together with other linguistic expressions in a class called figurative language. Within this class we can also find expressions like metaphors, or that can be classified as sarcasm or irony, to mention a few. (Titone & Connine, 1999) One definition of idioms say they are “a special kind of phrase. It is a group of words which have a different meaning when used together from the one it would have if the meaning of each word were taken individually” (*Collins Cobuild Dictionary of Idioms*, 1995). Another fascinating aspect of idioms is how they are, for the most part, not translatable from language to language, seemingly having roots in culture.

Idioms are also far more common than one may assume. According to Levorato and Cacciari (2002), during normal conversation, an average person utters about 5,9 figurative expressions every speaking minute, making a person use figurative expressions on average 26,1 million times over a 60-year span. In spite of this frequency, though, idioms are acquired late in life relative to literal language, as made apparent by Levorato and Cacciari (1995) and their General Elaboration Model, and supported by several studies observing that idiom proficiency is strongly related to age. (Cain, Towse, & Knight, 2009; Nippold & Duthie, 2003; Oakhill, Cain, & Nesi, 2016; Vulchanova, Vulchanov, & Stankova, 2011)

Due to idioms being such special constructs, with some being transparent and others opaque in nature, it is also very interesting to look at possible correlations between different kinds of comprehension and stimuli and idiomatic comprehension. There are studies on both reading comprehension (Cain, Oakhill, & Lemmon, 2005; Levorato, Nesi, & Cacciari, 2004) as well as language learning strategies (Zarei & Pour, 2013), as predictors of idiomatic proficiency, which will be looked at further towards the end of this chapter.

In this chapter, I will study the theoretical aspect of idioms, looking at acquisition and processing, as well as predictors for idiom comprehension proficiency.

2.2 Idiom comprehension and processing

2.2.1 Compositional or non-compositional

There are many theories of how idioms are processed. These theories tend to fall within two groups of models: Those that follow the compositional approach, and those that follow the non-compositional approach. Titone and Connine (1999) discuss these approaches thusly:

The non-compositional approach bases itself upon the notion that idioms are specific and often arbitrary constructions of words that have an assigned figurative meaning, which has little to no possibility of being derived from their lexical components. Because of this non-literal nature of idioms, it is widely accepted that, as their meanings cannot be derived merely from their syntactic structure as with literal language, idioms must be a part of our “mental lexicon”. Thus, they are a part of the long-term memory, and are stored there in the same way as particularly long words. (Jackendoff, 2002; Titone & Connine, 1999)

There are, however, different kinds of idioms, some being more transparent, and easy to understand without previous knowledge, than others. To give an example of such differences between idioms one may look at an idiom such as *kick the bucket*, which means “to die suddenly”, and another such as *save your own skin*, which means “to save oneself”. The difference here is that *kick the bucket* is an opaque, or a non-compositional, idiom, which is nigh – if not completely – impossible to derive any meaning from which resembles its figurative connotation. *To save oneself* on the other hand, is more transparent, or compositional, and far more simple to derive meaning from. (Jackendoff, 2002; Titone & Connine, 1999)

2.2.1 Comprehension theories

Cooper (1999), as well as Tirone and Connine (1994) each highlight four of these theories in their studies on L2 idiom comprehension and descriptive norms for idioms respectively, three of them being the same. Most of these models fall under the categorization of the non-compositional approach

First of these is the *Literal Processing model*. The hypothesis, based on an experiment by Bobrow and Bell (1973), states that native speakers encountering an idiom will always interpret the expression literally by default. Only if the expression gives no meaning or does not fit the given context will the native speaker go to a special part of the mental lexicon to find a stored figurative meaning. This theory has since been rejected, however, based on research and experiments timing recognition speed for idioms. According to Glucksberg (1993) subjects never understood literal meanings of idioms faster than they did the figurative, which rejects the notion of processing the literal interpretation before the figurative one.

Second comes the *Lexical Representation model* proposed by Swinney and Cutler (1979). This model proposes, as Titone & Connine (1999) as well as Jackendoff (2002) coincides, that idioms are stored along with words in what Chomsky (1965) called the mental lexicon. A native speaker encountering an idiom will, according to this hypothesis, process both meanings

simultaneously, with context being a central factor in whether the literal or figurative interpretation “wins out”. Swinney and Cutler’s experiments confirmed their hypothesis of idioms being stored in the lexicon, refuting the previously mentioned *idiom-list hypothesis*, showing that no such special lexicon for idioms. (Cooper, 1999)

The third model discussed by Cooper is the *Direct Access model* as it is presented by Gibbs (1980, 1984) and Schweigert (1986). This hypothesis builds on the *lexical interpretation hypothesis*, suggesting that native speakers seldom considers the literal meanings of idioms, but retrieves information on idioms’ figurative meanings directly from the lexicon instead. Since the storing of idioms as lexical units does away with the trouble of analysing syntactic structure, the subjects merely circumvent the entire analysis process, recalling the idiom and its meaning directly from the lexicon.

The fourth model highlighted by Titone and Connine is the *Configuration hypothesis* proposed by Cacciari and Tabossi (1988) and termed by Cacciari and Glucksberg (1991). This model is, in contrast to the ones previously mentioned, more lenient on the non-compositional nature of idioms, and can be classified as a compositional model for idiom comprehension. It suggests that in the case of idioms where the last word or words are highly predictable, the figurative meaning of the idiom can be retrieved after hearing a certain amount of the idiom, which suggests that idiom meanings are distributed representations rather than lexical entries.

The fourth model highlighted by Cooper, and another one falling under the compositional approach is the aptly named *Composition model*, formulated by Gibbs, Nayak and Cutting (1989). The model states that although idioms are stored in the mental lexicon, subjects in experiments tend to comprehend decomposable idioms, idioms with close figurative and literal meanings, faster than non-decomposable idioms. This finding indicates that the clean-cut exclusion of semantic analysis proposed in the *direct access hypothesis* may not be entirely correct after all, as the results of these experiments show that idioms with a certain capacity of being semantically analysed are processed faster than idioms without this inherent capacity.

2.2.2 Different kinds of idioms

The differences between the compositional and non-compositional approaches to idiom comprehension show that there are in fact different types of idioms. An example of classification of idioms comes from Vulchanova et al. (2011) This study separates the idioms used in the experiments into three different classes; biological, cultural and instructional.

Examples of these categories are *out of your mind*, *kick the bucket*, and *don't put all your eggs in one basket* respectively.

Classifying idioms is not always an easy task, however, so it is more useful to look at different variation factors within idioms. Titone and Connine (1994) suggests an approach where they present four dimensions which idioms may vary along in order to more easily differentiate between the different types in order to more easily and accurately analyse results of experiments involving idiom comprehension.

The first of these dimensions that Titone and Connine mention is *familiarity*. This can be summarized as how often an idiom has been encountered before, and how well known it is to the subject. Several studies suggest that familiarity is important for comprehension of idioms, and that sentences containing idioms familiar to a subject are generally read faster than sentences containing non-familiar or less familiar idioms. (Schweigert, 1986) For this reason, controlling for familiarity is important when examining idiom comprehension.

The next dimension Titone and Connine mention is *compositionality*. As mentioned before, this is a dimension where the extremes are non-compositional idioms that have no similarities between the literal and figurative interpretation, and compositional idioms where the figurative and literal meaning are similar, or even part of the figurative meaning overlaps with part of the literal meaning. Reading speeds for sentences containing compositional idioms also prove to be faster than for sentences containing non-compositional idioms as per the Composition model. (Gibbs R. W. et al., 1989) This also goes neatly along with the previously mentioned Configuration hypothesis.

Predictability is the third of Titone and Connine's proposed dimensions, and concerns the ability to complete incomplete idiomatic phrases. Cacciari and Tabossi (1988) proved that subjects were more easily able and quicker to recover meanings of idioms where the last word was highly predictable than for idioms with low predictability of the last word.

The last dimension suggested in Titone and Connine's paper is *literality*. This refers to the potential of the idiom being interpreted literally, as some idioms have readily available and meaningful literal interpretations whereas others do not. In the case of this particular dimension, experiments have had ambiguous results as to whether idioms with readily accessible literal interpretations or idioms with more obscure literal interpretations are faster to process. (Titone & Connine, 1994)

2.2.3 L2 idiom comprehension

While all previously presented theories apply to L1 comprehension of idioms, L2 speakers come at a distinct disadvantage when it comes to processing idioms in their L2. Not only may the idioms be rooted in culture or tradition that does not exist in the L2 speaker's native language and therefore completely unknown to the L2 speaker, but the he/she must also process the context and words in their second language.

According to Cooper (1999), an L2 speaker put in a situation where they must understand an unknown idiomatic phrase, he/she will have to experiment with different possibilities, in a trial and error-method, in order to gain understanding. The study conducted by Cooper shows that L2 learners do indeed use such a heuristic method in order to solve the problem of unknown idioms in their L2. The most frequent strategies the participants in this study used to deal with the problem were to guess from a given context, choose the literal interpretation of the idiom, or discussing and reflecting upon the idiom in order to deduce its figurative meaning.

2.3 Predictors for idiom acquisition

2.3.1 Age as a factor

The Global Elaboration Model (Henceforth GEM), suggested by Levorato and Cacciari (1995) is a developmental model mapping acquisition of figurative language skills. The model suggests that acquisition of idiom comprehension comes late, and changes dramatically around the age of eight years old.

The model, as explained by Levorato and Cacciari (2002), aims to, in particular, answer what they call "two crucial questions": When does a child move from analysing a text locally – by its parts – and start processing it as a whole? What abilities are needed for children to process language in other ways than a literal interpretation? The article continues to define the set of abilities thusly:

1. The ability to comprehend the dominant as well as the peripheral meanings of a word and its position in a given semantic domain;
2. The ability to go beyond a literal strategy of language interpretation. This is a prerequisite necessary to cope with most of the linguistic repertoire not only with figurative language;
3. The ability to use contextual information to construct a coherent semantic representation of a text by integrating different sources of information;
4. The awareness that what is said and what is meant does not always coincide. (p. 129)

Further, the GEM suggests five developmental phases of figurative competence. The first of these phases is a primitive phase where the children, in spite of such an approach making little

to no sense, process language literally. The second phase, starting at approximately seven years of age, is when children begin to understand based on situation and context that there might at times be discrepancies between what is said and what is meant. The third phase, starting at around ten to twelve years of age, is when children come to the understanding that an intention can be communicated in more than one way, be it literally or figuratively, and the ability to use idioms is developed. Phase four constitutes of adolescents around the age of fifteen increasing their ability to use figurative language, while the fifth and final phase is characterized by an ability to creatively use figurative language in an adult-like manner (Levorato & Cacciari, 2002)

2.3.2 Exposure as a factor

Exposure goes hand in hand with familiarity. If you are exposed to an idiom, it will become familiar to you. According to Tomasello (1992, 2003), exposure to linguistic input is highly important when it comes to early acquisition, research showing that the grammar structures acquired by young children typically mirrors that which they have been exposed to in the form of input through their caregivers or other adults. As mentioned earlier, idioms are also closely aligned with humour, irony and metaphors, all constructs that rely heavily on exposure. If you are not exposed to such forms of language, you will not know or understand them. (Vulchanova et al., 2011) The study of Cain et al. (2005) also suggests that exposure is an important factor of idiom acquisition. In their study, it was shown that subjects were more likely to correctly identify the figurative meaning of real idioms (idioms they might have or had encountered or heard before), than to correctly identify the figurative meaning of novel idioms (original idioms that were not part of the subjects' native language).

Following this reasoning, the GEM, cited in chapter 2.3.1, also builds up under exposure as an important factor for idiom acquisition in all four of its suggested abilities necessary for figurative understanding of language. All four abilities necessitate exposure as a factor in order to gain these abilities. However, exposure to figurative language alone, with no link to comprehension, has no direct link to idiom acquisition. (Levorato et al., 2004)

2.3.3 Context as a factor

According to the third ability suggested by the GEM for understanding language in other ways than literal, as cited in chapter 2.3.1, the ability to use context in order to comprehend unknown aspects of language is very important. (Levorato & Cacciari, 2002) According to the study on development of idiom comprehension by Cain, Towse and Knight (2009), all test subjects

benefited from idioms being put into context, having a higher mean comprehension score on idioms with context than idioms without.

Other studies also build up under this notion. It has been found that when an unfamiliar idiom is placed in a context, it helps the reader to understand the figurative meaning of the expression by inferring the context, understanding that the words must be interpreted differently if the literal meaning does not fit the context. (Cain et al., 2005; Oakhill et al., 2016) As shown by Levorato, Nesi and Cacciari (2004), there is also a difference in the type of context given. If the context allows for literal interpretations of an idiom, children will be more likely to go for the literal interpretation of the idiom than if the context given only plausibly allows for a figurative interpretation of the idiom.

2.4 Predictors for idiom comprehension

2.4.1 Metalinguistic awareness

As mentioned earlier in the chapter, an interesting factor of studying idioms is to look at possible predictors of idiom comprehension. It has been suggested that metalinguistic skills can be a predictor for prowess in other linguistic fields. (Benelli, Belacci, Gini, & Lucangeli, 2006) This study explains metalinguistic awareness as the ability to think about and reflect upon language, being able to observe and explain linguistic nature and functions. Furthermore, the study discusses the correlations between metalinguistic abilities and cognitive development, metacognition, literacy oral language skills, performance in school tasks, as well as acquisition of reading and writing tasks. (Benelli et al., 2006).

Vulchanova et al. (2011) also mentions metalinguistic awareness as a possible predictor of idiom comprehension. They state that idioms share many properties with other linguistic domains, as different kinds of figurative language such as metaphors, as well as comprehension of humour and irony, among other fields. These all share the common trait of relying at least somewhat upon metalinguistic awareness of language structure.

2.4.2 Reading comprehension

Reading comprehension as a predictor of idiom comprehension is a field that has been studied earlier. (Cain et al., 2005; Levorato et al., 2004). Levorato et al. researched this by using Italian children as subjects, presenting them with a standardized reading comprehension test. Then, two experiments with idioms were conducted where the children were subjected to idiom comprehension tests. With each idiom in both experiments were given contexts, the difference between the two being the difference in appropriateness of the literal interpretation of the

idioms. In the first experiment, the given context made only the figurative interpretation of the idiom plausible, while the second experiment gave contexts that allowed for both interpretations to be plausible, but making the figurative interpretation more appropriate. Eight months later, a follow up-study was conducted, in which the same subjects were again presented with the reading comprehension test (difficulty adjusted to account for age difference), after which they were again subjected to the same idioms tests with half the idioms being given with a figurative context and the other half with a literal context. The results of the study showed that along with age and context having effects on the answers given by the subjects, the scores of the comprehension tasks correlated closely with the results of the idiom tests.

In Cain et al. (Cain et al., 2005), a similar study was conducted, where two groups of children (grouped by comprehension proficiency; good and poor comprehenders) were subjected to initial comprehension and grammar tests, and then to a test of idioms in context, where the children were asked to define idioms given in a story context. There were four separate and different types of idioms; real-opaque, real-transparent, novel-opaque and novel-transparent. The study put a lot of focus on the novel idioms, idioms not familiar to the subjects, as it was expected by the hypothesis of reading comprehension being a predictor for idiom comprehension, that poor comprehenders would have greater trouble understanding novel idioms than good comprehenders. The final results of the study did indeed show positive correlation between reading comprehension level and the ability to comprehend idioms.

2.4.3 Language Learning Strategies

In a study by Zarei and Pour (2013) on language learning strategies as predictors for L2 idiom comprehension, attempted to see which language learning strategies were better predictors for idiom comprehension in the second language. Idiom processing in L2 being different and more difficult than in the L1, as previously visited through Cooper (1999), idiom acquisition and comprehension is considered one of the most difficult aspect of language learning for an L2 learner. (Zarei & Pour, 2013) Due to their abundance in daily discourse, however, (Levorato & Cacciari, 2002), learning how to use idioms is crucial for second language learners. (Cooper, 1999). That is the basis of Zarei & Pour's study.

The subjects of the study, all L2 learners of English studying different branches of English in university, were subjected to a questionnaire to map their use of language learning strategies, answers being given on a five point scale from 'Never' to 'Always'. The questionnaire used

was the Strategy Inventory for Language Learning version 7.0 developed by Oxford. This test mapped the use of the following strategies: Memory, cognitive, compensation, metacognitive, affective, and social learning strategies. Subsequently, the subjects were presented with an L2 idiom comprehension test. The results of the study showed that cognitive strategies for L2 learning was the best language learning strategy for predicting idiom comprehension in L2 learners of English.

2.5 Hypotheses and predictions

Based on the presented theoretical material, this thesis will for the most part review the mental lexicon, metalinguistic awareness and exposure as possible factors that predict idiomatic proficiency in L2 learners and users of English. Based on the suggestions that idioms are stored in the mental lexicon, as per the Lexical Representation model (Swinney & Cutler, 1979) and the Direct Access model (Gibbs, 1980, 1984; Schweigert, 1986), as well as metalinguistic awareness being important factors in the understanding of figurative language (Benelli et al., 2006; Vulchanova et al., 2011), the hypotheses will be based in particular on grammar proficiency and vocabulary size. As exposure is also an important part of idiom acquisition (Cain et al., 2005; Tomasello, 1992, 2003; Vulchanova et al., 2011), the study will look at answers given in background forms that connects to exposure to the English language .

Through this theoretical framework, the two hypotheses of this study was as follows

1. Seeing as some types of idioms to a certain degree being stored in the lexicon, especially non-compositional (opaque) idioms, while others are more easily decipherable (compositional/transparent) and possible to process without familiarity, it can be assumed that both vocabulary (lexicon) as well as grammar proficiency (metalinguistic skills) should be possible predictors for idiomatic proficiency.
2. Seeing as exposure is an important facture for language learning, both literal and figurative, it can be assumed that different forms of exposure to the English language, such as watching television, reading, or playing video games, should have a correlation with idiomatic proficiency.

3. Methods

The aim of this study was to investigate the existence of factors predicting command of English idioms in Norwegian upper secondary students with English as their second language, and try to analyse the results of the study with theories of predictors in language comprehension. In order to find data for this thesis, a group of 29 upper secondary students were subjected to three different tests, as well as asked to answer a background information form. The tests consisted of one vocabulary test, one grammar test, and a two-part idioms test where the students were presented with idioms, each placed in a context, having to choose the correct written or image-explanation for the given idioms. For the image part of this idiom test, we used a mouse-tracking programme to track the participants' reaction times and mouse trajectories as they gave their answers. This information will not, however, be used in this particular thesis, but only in its "twin" thesis focusing on processing of figurative language. In addition to the upper secondary students, a separate group of Norwegian university students studying English were also tested as a control group. They were not subjected to the mouse-tracking test, but rather a simpler version of the image-test.

3.1 Participants

3.1.1 L2 users

This study had three separate groups of participants. Primarily there are the aforementioned 29 upper secondary students, 18 female and 11 male, all between the ages of 16 and 17. These students were all in a single VG1-class, having English taught as an obligatory subject. Unfortunately, three of the students were not attending school on one or both days the testing was conducted, and had to be left out of the study due to insufficient data. Through analysis of the background forms, we concluded the remaining students were eligible for the study, leaving us with a group of 26 students, 17 female and 9 male.

The second group of participants were the university students from NTNU. In this group there was also 26 participants, 17 female and 9 male. These were all between the ages of 20 and 28, with a mean age of 24, all studying in the second to fifth year of different English programs.

In following with the guidelines of the Norwegian Social Science Data Service (NSD), we had all participants were required to sign a form of consent before participating in the study. One such paper was formulated for the study, and submitted to NSD for approval. Information about the study was given to all participants before they signed the consent form. The study was approved by NSD, and as part of their guidelines, no names or information possibly leading to

the identification of any of the participants was ever obtained. All participants from the two L2-groups were given participant numbers – the upper secondary students being numbers 101-129, while the University students being numbers 201-226 – in order to identify and pair the data given in the background forms with the data obtained from the proficiency and idiom-tests.

3.1.2 Native speakers

The study also included a third group of participants, which were native speakers. The native speakers were from an English university, and were used as a way to ensure that the idioms used in the study, as well as the contexts given for the idioms, were indeed known by L1 speakers of English. This group consisted of 109 participants, 10 of which had to be excluded due to not having English as their L1. This left us with a group of 99 participants. Other than native language, no background information was collected from this group, and due to them functioning as a control group for the idioms, they were not subject to the grammar and vocabulary tests.

3.2 Materials and Procedures

The selection of participants for the study went thusly: The Upper Secondary group was suggested to us by our supervisor. The school where the participants from this group are students has been helpful in making their students available for other projects earlier, and the teachers were familiar with the kinds of studies the language department at NTNU conducts. One of the teachers was willing to give us time in a class to conduct the study.

The University student group was found through solicitation in lectures in different English courses at NTNU campus Dragvoll. They were all volunteer participants and received no compensation for their participation in the study.

The native speakers were all recruited from an English university, where our supervisor contacted a professor who helped us find participants.

All L2 participants were first asked to sign consent forms and background forms.

3.2.1 Proficiency Tests

The two proficiency tests were used to get a baseline for the English proficiency of the participants. In the case of this particular study, it was also done to research whether vocabulary and grammar proficiency are viable predictors for idiom proficiency. Both the vocabulary test

(Ugent.be, 2015) and the grammar test (Cambridge University Press, 2006) were online tests provided by our supervisor.

The vocabulary test, was in the format of 100 tasks where the participants were presented with one letter sequence per task. Some of these letter sequences were existing English words, while others were made up non-words. The task was to identify the existing words by responding with “yes” or “no” to every letter sequence, “yes” meaning “this is a word I know” or “this is an existing word”, and “no” meaning “this is not a word I know” or “this is a non-existent word”. The results for the test was given at a number between 1-100 which represented the percentage of existing words identified minus the percentage of non-words identified as existing words.

The grammar test presented the participants with 50 tasks, each with four alternatives as to what was the correct answer. The tasks were in the form of sentences where one word was missing, leaving the participants to chose the correct one out of the four alternatives. If the participants responded incorrectly, they would have to respond again until the correct alternative was chosen.

Both these tests were advanced and aimed at native speakers, making the difficulty quite high for the L2 participants. This was done in order to make it easier to compare the two groups to each other, one being so much more advanced. In the case of both tests, the results were shown on the computer screen after the test was completed, which we in turn controlled and wrote into the background forms.

3.2.2 Idiom Test

The making of the idiom test was by far the most challenging aspect of the study. Consisting of 60 idioms with given contexts, as well as four alternatives for each idiom, 30 of them having picture alternatives which we decided to draw by hand, it was a rather large task.

The we chose were mostly found by using google, searching for lists of idioms and picking out the ones we found suitable for our study, judging out idioms that seemed to difficult or obscure, as well as those we deemed too simple or, in most cases, too much alike Norwegian idioms of the same meaning.

We then ended up with our list of 60 idioms which we proceeded to split in two.

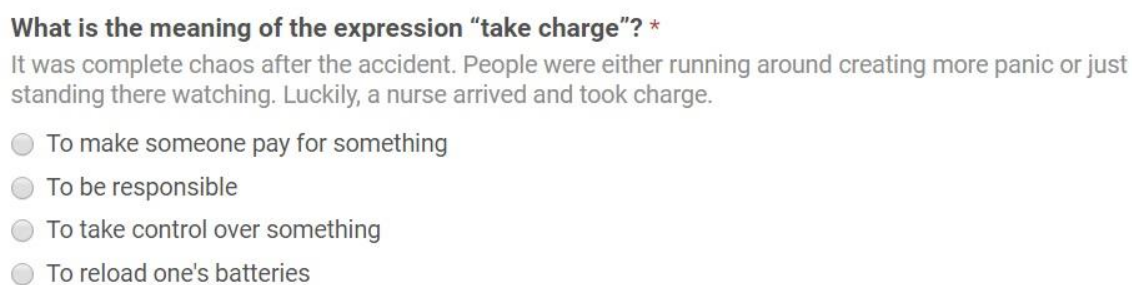
The reasoning for which of the 60 idioms were chosen to be part of the written part and which would be part of the image part of the test was simply which of the idioms had both figurative

as well as literal meanings equating to actions that were feasibly possible to draw. An example of this was “Having green fingers”. The literal meaning resulted in an image of a person with green fingers, while the figurative meaning resulted in an image of a person tending a garden; both situations being simple to translate into visual representations.

All participants were presented with the two parts of the idiom test in the same order; the written part first, then the image part. This was done in the hope that the images would refresh the participants’ interest in the test and keep their minds active. In the case of the upper secondary participants, the image part also included an extra dimension, as they answered this part of the test through the mouse-tracker program, requiring them to leave the classroom and go to a different room across the hall where we had prepared computers for them to conduct the test on.

In the written part of the test, the participants were presented with thirty tasks, each with a question of what a particular expression, put into quotation marks, meant, the given idiom placed in a short story context, and given four alternative explanations of the meaning of the idiom. All L2 speakers answered this part of the test through Google Forms, making every question within each part of the test, as well as the alternatives for each task, appear in random order. Figure 1 (below) is an image of how a task was presented to an L2 participant.

Figure 1: Written idioms test example



The alternatives were modelled to consist of one correct figurative meaning, in this case “To take control over something”, as well as one more literal interpretation, in this case “To reload one’s batteries”. The remaining two answers were designed to be wrong, but with varying degrees of relation to the given idiom or context. In Figure 1, “To be responsible” is closely related to the figurative meaning of the idiom. “To make someone pay for something” is more closely related to a literal interpretation of the idiom. In this example, both answers fit nicely into the given context.

The image part of the idiom test was different from the written part. For the University students, this part of the test was also given on the Google Forms-platform, with a question asking the participant to choose the image that depicted the “meaning of” the given idiom, followed by four different images of stick figures and then – like the written test – a short story context. The images were all hand-drawn by us, then vetted by our supervisors where some were eliminated due to image complexity. These can be found in Appendix 5. The images were then subsequently scanned and adapted digitally to fit into the Google Forms-format. In the image part of the test, we were not able to randomise the alternatives as we could only add one image per question. Hence, the images were semi-randomly placed beforehand, the literal depiction always being either directly below, above or beside the target image, never diagonally across. Figure 2 shows an example of how this would look.

Figure 2: Image idioms test example

Choose the picture that shows the meaning of "to flip someone the bird"

A **B**
C **D**

Flip the bird*
Tim was angry with Sara. He flipped her the bird.

A
 B
 C
 D

In the case of Figure 2, the meaning of the idiom is to give someone the finger, making the correct answer alternative D. The literal distractor-alternative is B. The remaining two images in each image task were designed, as in the written test, with varying degrees of connection to the given idiom and/or context. In this particular instance, image A is more connected to the idiom, the image depicting a different “hand gesture”, image C has more of a connection to the context, with the character Tim being visibly angry.

Due to this thesis’ “twin” focusing on idiom processing, the image test for the upper secondary participants was conducted quite differently. The images and tasks were the same, but in this case it was presented through a mouse tracking-program, in order to see and analyse the mouse movements of the participants as they partook in the test. In order to use the program, we had to create strings of computer code to input into the program. The result was a layout where the program presented four images, one in each corner of the screen, with text in the middle. Due to the screen being rectangular, the target image as well as the distractor image would always appear on the same side of the screen, either right or left, in order to ensure the trajectories would be more easily analysed.

This test was conducted in a separate room with three laptops, each with separate computer mouse devices – as to not make the participants use the laptops’ touchpads – as well as separate keyboards in order to make the seating position more comfortable for the participants. The small amount of computers caused us to have limited capacity, and resulting in us having to return to the school a second time in order to finish the test for all the students. When the participants entered the room with the laptops, they were placed at a computer and instructed to keep their right hand on the mouse, and their left hand on the “Enter”-key on the USB-keyboards. Then they were instructed in how to navigate the questions and how to answer them. The test first gave the participants the four images and a “Start” button in the middle of the screen. When the button was pressed, the cursor disappeared from the screen, and the context for the idiom became visible. Then, after reading the context and pressing the “Enter”-key, the participants were presented with only the idiom itself. The four images continued to be visible throughout this process. Only after pressing the “Enter”-key did the participants regain control of the mouse, the cursor always starting from the middle of the screen. Then the participants hovered the cursor over their chosen image, clicked it, and repeated the process for all thirty idioms.

Due to the guidelines of the university where we recruited our native speakers, the tests had to be adapted into a specific online questionnaire platform named Qualtrics. All native speaker participants answered both the image part and the written part of the idioms test online in qualtrics.

3.3 Analysis

Accuracy data from all idiom tests were transferred manually into Excel and added up, giving a summary of responses for each of the three conditions: Correct, literal, and distractor, giving each participant two observations, one from the written test and one from the image test. The datasets were run through R, and tested for normality both within-group and between groups. Seeing as the university students performed at ceiling, a more robust method of comparing data was needed. A repeated analysis of variance test (ANOVA) was conducted in order to measure the groups against each other in the different conditions. The ANOVA were run with the dependent variable as either “Correct”, “Distractor”, or Literal, and the two stimulus types as “Image” and “Written”. This allowed us to see differences in performance between the two stimuli.

3.3.1 Background forms

The background forms were digitalized manually by writing them into Excel. All answers relevant to English exposure were given as numerical values.

3.3.2 English Proficiency Tests

The vocabulary and grammar tests were, as mentioned, gathered manually, and written down by hand. Then they were digitalized in Microsoft Excel as numeric values. The vocabulary test gave an approximation of how many percent of English words each participant knew, giving us a number between 1-100. The grammar test, consisting of 50 tasks, gave a number between 1-50, corresponding to how many correct answers the participant had given. This was simply adjusted into percentages by multiplying the results by two. We then ran the results through R for analysis.

3.3.3 Idiom test

The idioms were first sent to the native speakers through the Qualtrics-platform in order to help us exclude non-familiar or seldom used idioms. The results came back with seven idioms, four written and three image tasks, having a correct answer-rate of less than 75 % (an arbitrary threshold initially set by us as a criterion of inclusion) as seen in Appendix 6. By the time the results returned from England, however, the tests on the L2 participants had already been

conducted, and none of these seven tasks seemed to have given the L2 participants much trouble compared to the other tasks, which had gotten above 75 % correct-ratings in these tests. Especially in the results of the upper secondary-participants, there were no discernible difference in the number of mistakes made in these seven tasks than any of the others. For these reasons, we decided to keep the idioms in the results.

3.3.4 Testing for predictors

In order to test for predictors, the correct percentages for each stimuli were run separately against the numerical values for the exposure questions and the results of the vocabulary and grammar tests for both groups separately as well as all participants together, through a predictive analysis in SPSS. The different possible predictors can be found in the background forms in Appendix 2, but will also be repeated here. They were: Frequency of reading texts, frequency of writing texts, frequency of listening to English, frequency of watching English movies/shows, use of subtitles, frequency of watching English cartoons, frequency of playing English video games, hours of videogames played daily, and amount of television watched each day.

3.4 Potential sources of error and limitations

The greatest limitation for this study is its selection of idioms. Due to the scope of the study, they could not be tested for familiarity, which is a weakness, as a subject more familiar with the idioms than others would have a distinct advantage over other subjects. In addition, the idioms have not been classified or checked against any norms, all idioms being treated equally in the analysis, which contradicts the suggestion to view idioms places in the dimensions suggested by Titone and Connine. (1994) Neither are any contexts given to accompany the idioms particularly reviewed for whether they allow a literal interpretation of their respective idioms or not.

Another possible weakness of the study is the decision not to omit the idioms judged poorly by the native speakers. This was done due to the L2 university students dramatically outperforming the native speakers on all these idioms, so we judged them to be usable for the study after all. Nevertheless, they still pose as a potential weakness to the study over all.

Finally, the fact that data collection in the image idiom test differed between the upper secondary students and the university students could be viewed as a potential weakness. In the case of the upper secondary students, the addition of an extra dimension in the MouseTracker

program might possibly have been distracting to the subjects, causing a skew in the collected data. This was, however, discussed with and approved by our supervisors.

4. Results

This chapter will describe the results of all the conducted tests, as well as the parts of the background forms relevant to idiom comprehension predictors. The data will be presented as well as analysed, and discussion of the results will be presented in the next chapter. All results relevant to this thesis was analysed in R, as well as SPSS. The two different groups were compared to each other using a repeated analysis of variance test (ANOVA) to compare the groups to each other.

Primarily, the results will focus on the idiom tests, and present overall accuracy of the two separate groups. Then, the results of the automatic linear modelling-program, analysing for correlations between the accuracy of the idiom tests, and comparing them with the scores of the proficiency tests as well as answers given in the background form. Chapter 4.1 will present the results of the proficiency tests, chapter 4.2 will present the accuracy of the idiom tests, chapter 4.3 will account for English exposure by briefly presenting the answers given in the background questionnaire, and lastly, chapter 4.4 will present the results of the predictive analysis in SPSS.

4.1 The proficiency tests

Table 1: Grammar and vocabulary tests by mean standard deviation

Group		N	Mean	Std. Deviation
University	Vocabulary	26	63.000	10.1272
	Grammar	26	82.462	8.5287
	Valid N (listwise)	26		
Upper Secondary	Vocabulary	26	39.038	15.2931
	Grammar	26	56.385	11.4964
	Valid N (listwise)	26		

Table 1 is a representation of the results from the proficiency tests. By running a wilcox test between the two groups for the vocabulary data, we found the effect value to be 68 and it gave us a p-value $<.001$. For the grammar test, the effect value was 26,5 and also here we got a p-value $<.001$.

Both tests showed very high scores for the university students, the mean results being 63 % and 82.5 % for the vocabulary and grammar tests respectively. The upper secondary-students showed much lower scores, with the mean results amounting to 39 % for the vocabulary test

and 56.4 % for the grammar test. This amounts to differences between the groups amounting to ~24 percentage points for the vocabulary test and ~26 percentage points for the grammar test. It is also worth noting the difference in standard deviation between the two groups. While the university students have a standard deviation of 10 points in the vocabulary test, the corresponding number for the upper secondary students is over 15 points. The same trends show in the results of the vocabulary test, where the university students show a standard deviation of about 8.5 points, while the upper secondary students' standard deviation is again higher, at about 11.5 points. This spread attests to larger differences in performance by among the upper secondary students than among the university students.

4.2 The idiom tests

Table 2: *Idiom test accuracy*

Group			N	Mean	Std. Deviation
University students	Image	Correct	26	98.4308	2.40046
		Literal	26	.9154	1.81388
		Distractor	26	.6538	1.67098
		Valid N (listwise)	26		
	Written	Correct	26	93.2962	5.40107
		Literal	26	5.5981	4.88628
		Distractor	26	1.1096	1.55525
		Valid N (listwise)	26		
Upper secondary students	Image	Correct	26	75.6408	20.92872
		Literal	26	12.1792	13.46358
		Distractor	26	11.0242	8.98179
		Valid N (listwise)	26		
	Written	Correct	26	61.1538	20.30725
		Literal	26	9.4862	7.46548
		Distractor	26	29.3592	15.69271

		Valid (listwise)	N 26		
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The results of the idiom tests continue to show the university students outperforming the upper secondary-students by a wide margin. It is also worth noting that the differences in standard deviation between the two groups in the idioms test is remarkable, with the university students showing a standard deviation of 2.4 and 5.4 percentage points for the image and written parts respectively, while the upper secondary students show standard deviations of over 20 percentage points in both instances. This difference in spread is also shown in the boxplots in figures 3, 4 and 5 below.

Figure 3 and 4: Boxplot – correct responses to the left and distractor responses to the right – by both groups with both stimuli

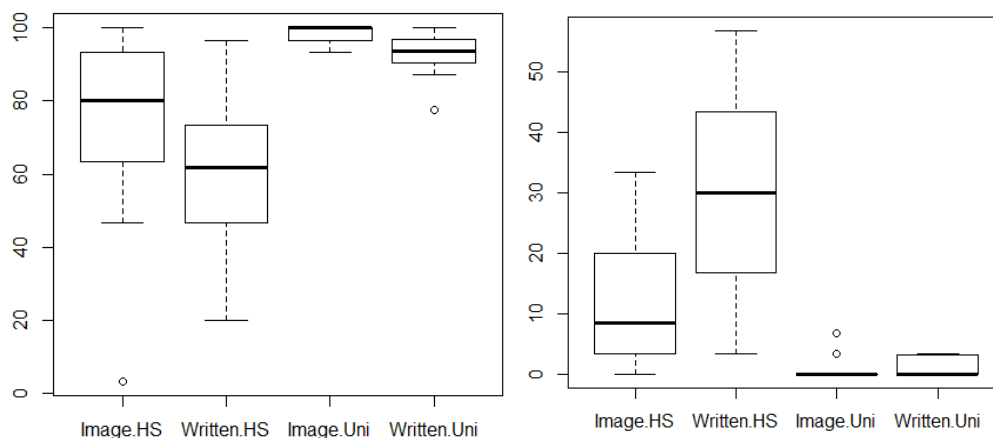
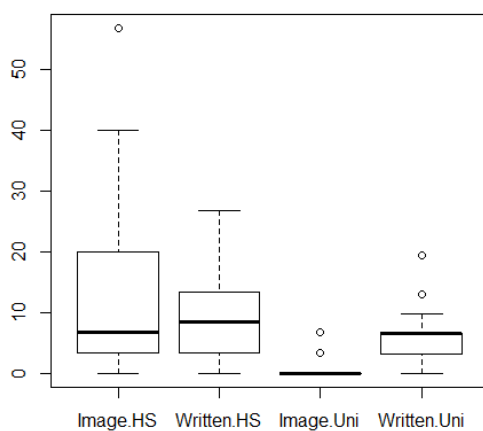


Figure 5: Boxplot of literal responses by both groups with both stimuli



Note: HS = upper secondary group. Uni= university student group. The scale from 0 to 100 denote percentage of correctness.

Figure 4, 5 and 6 show the differences between the university students and the upper secondary students. From them we can see that the university students performed at ceiling values, especially in the image task. The boxplots also show that the written tasks proved more difficult for both groups, but for the upper secondary group in particular.

The ANOVA results show that there are differences in results both between-subjects and between the groups for all conditions. This is shown in table 3 below.

Table 3: ANOVA

Correctness

	Df	Sum Sq	Sq Mean	F value	Pr(>F) (*)
Group	1	19614	19614	61.95	2.63E-10
Residuals	50	15830	317		
Stimulus	1	2503	2502.5	19.85	4.72E-05
Stimulus:Group	1	569	568.5	4.51	0.0387
Residuals	50	6303	126.1		

Literals

	Df	Sum Sq	Sq Mean	F value	Pr(>F) (*)
Group	1	1492	1492.3	20.62	3.55E-05
Residuals	50	3618	72.4		
Stimulus	1	25.7	25.7	0.431	0.5146
Stimulus:Group	1	353.6	353.6	5.921	0.0186
Residuals	50	2986.2	59.7		

Distractors

	Df	Sum Sq	Sq Mean	F value	Pr(>F) (*)
Group	1	9695	9695	92.73	5.64E-13
Residuals	50	5227	105		
Stimulus	1	2295	2295.1	37.3	1.49E-07
Stimulus:Group	1	2078	2077.8	33.77	4.29E-07
Residuals	50	3076	61.5		

4.3 English exposure

The English exposure was extrapolated from data given in the background questionnaire. In the questionnaire, the participants answered a section on English exposure. Here they gave answers to questions on the frequency of their exposure to English through different mediums on a scale between 1-5, 1 being least frequent and 5 being most frequent. (This was the case for all except two questions. The question on subtitle was given on a scale of 1-4, while the question of daily hours played under video games was an open answer where the participants entered the number of hours they played daily. Additionally, the question on subtitles was not so much a question of frequency, but rather type. However, the number given is still in accordance with degree of English exposure; 1 being equivalent to the greatest diminishing degree of exposure, and 4 being equivalent to the largest degree of exposure. For a detailed overview of the questionnaire form, see Appendix 2.)

For a detailed table on the answers given on this section of the questionnaire, see Appendix 7. One of the questions in this section, the question on which types of video games the participants played, was omitted from the provided data due to a lack of numeric value. In Figure 4 is a summarized representation of the results for all different exposure types. (Frequency of reading texts, frequency of writing texts, frequency of listening to English, frequency of watching English movies/shows, use of subtitles, frequency of watching English cartoons, frequency of playing English video games, hours of videogames played daily, and amount of television watched each day), Each group's answers are given by mean value:

Table 4: Mean values of answers given in English exposure questionnaire

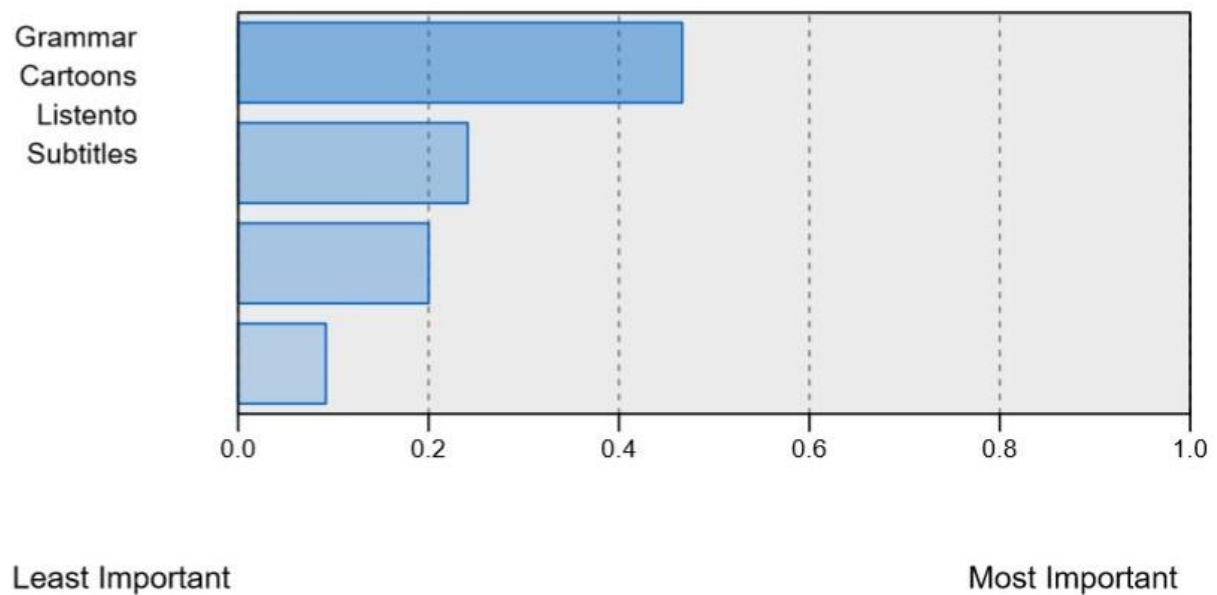
English exposure									
Group	Read texts	Write texts	Listen to	Show/Film	Subtitles	Cartoons	Games	(hours)	Television
Upper Secondary	4.46	3.23	4.42	4.31	2.77	2.46	2.04	0.58	2.19
University	4.92	4.31	4.81	4.35	2.92	2.54	2.50	0.99	2.23

Again we see a difference between the two groups, the mean score for all categories of exposure being higher for university students than for upper secondary students. Here, however, the differences are not as substantial as in the proficiency tests and the idioms test.

4.4 Predictive analysis

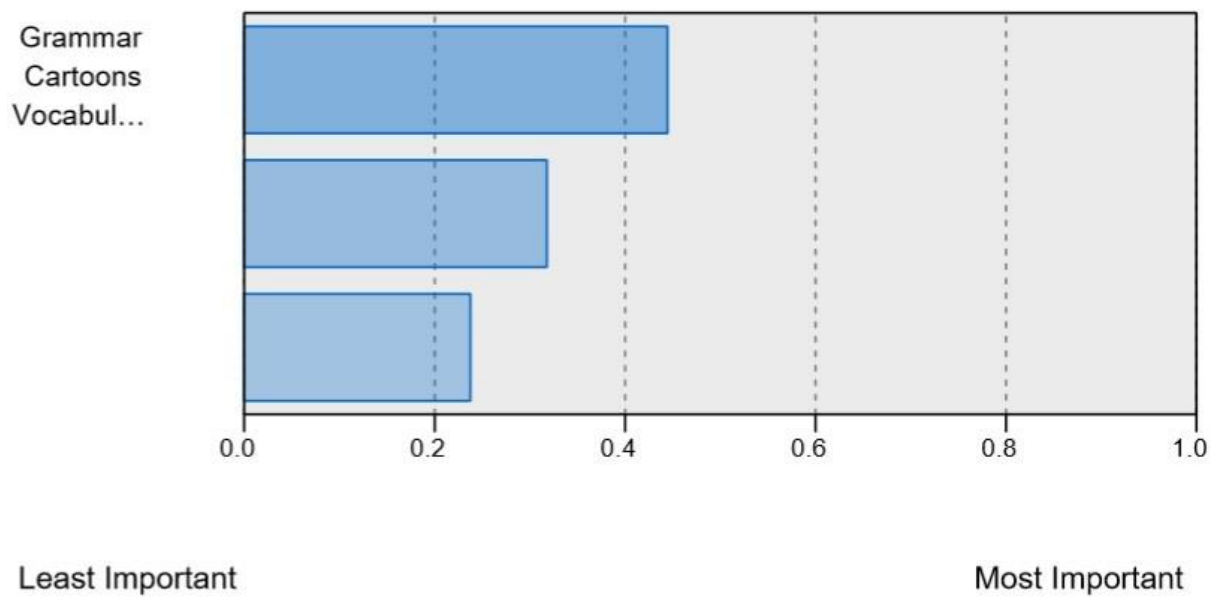
In order to look for possible predictors to the comprehension of idioms, a predictive analysis was conducted in SPSS. The tests were conducted for each of the two stimuli (written and image) for both groups separately, as well as both groups together. The program then fed back the factors that had the highest correlations with the results from the idiom comprehension tasks, which resulted in the six figures presented below. Figures 6 through 11 show the results of the predictive analysis.

Figure 6: Predictors for written idiom task upper secondary students



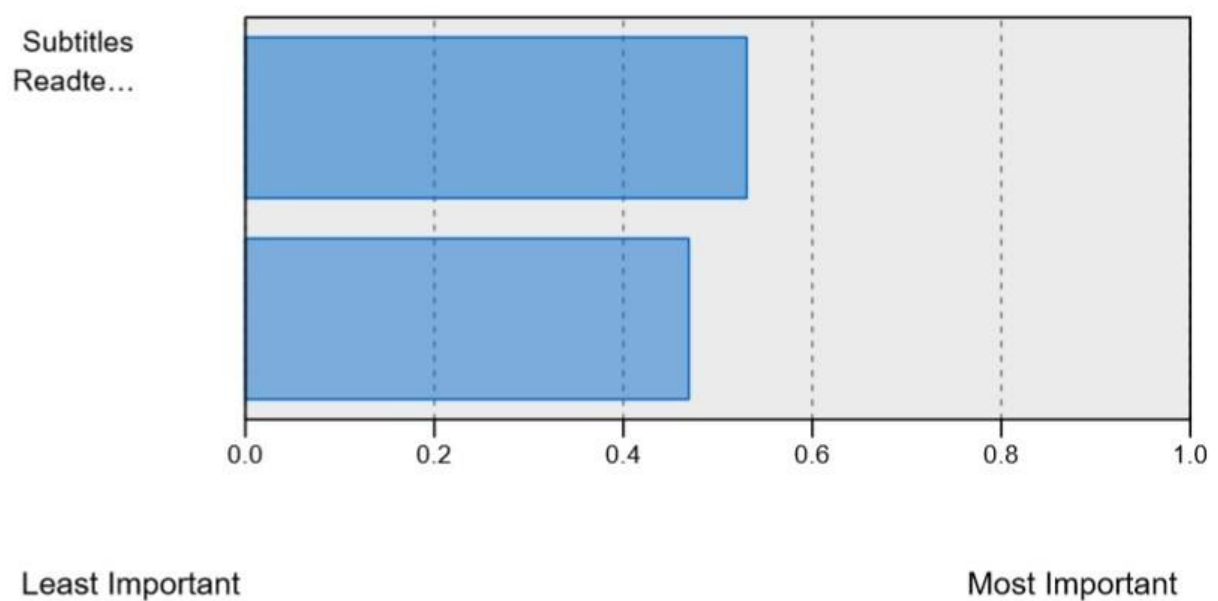
(accuracy 67,9 %)

Figure 7: Predictors for image idiom task upper secondary students



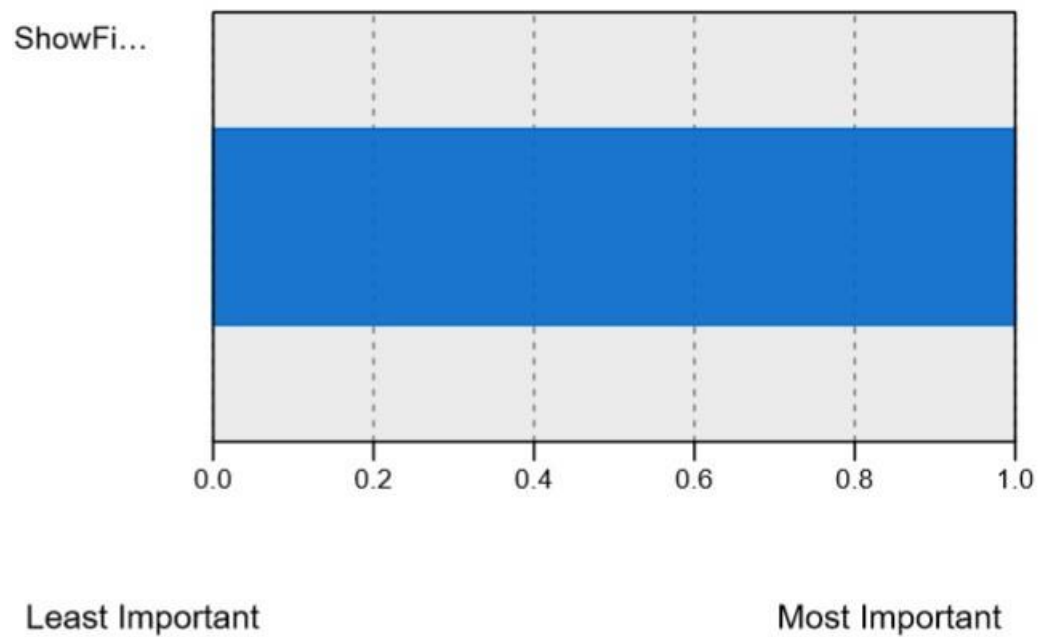
(accuracy 37,6 %)

Figure 8: Predictors for written idiom task university students



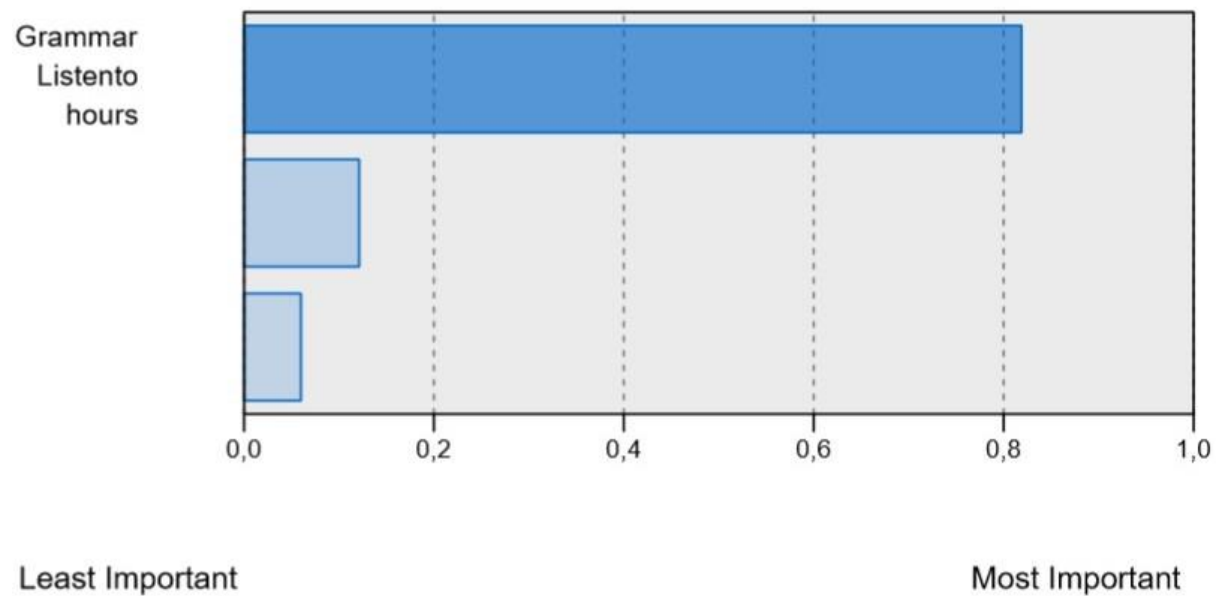
(accuracy 45,5 %)

Figure 9: Predictors for image idiom task university students



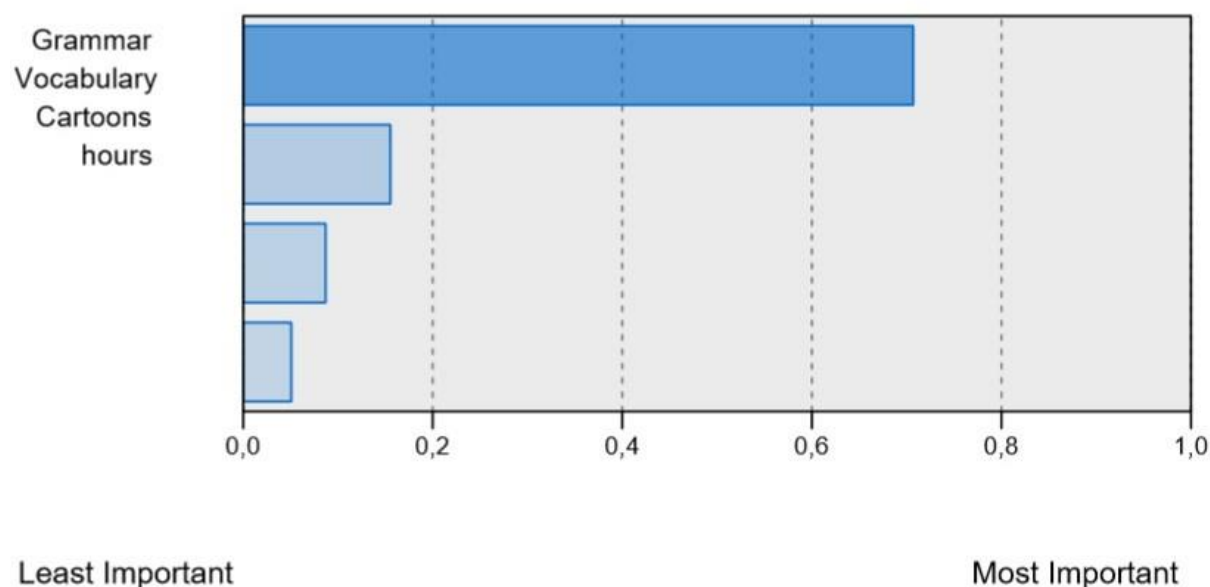
(accuracy 8,3 %)

Figure 10: Predictors for written idiom task all participants



(accuracy 73,9 %)

Figure 11: Predictors for image idiom task all participants



(accuracy 47,9 %)

Note that the tables name the predicting factors somewhat strangely. This is due to poor naming of the datasets in the input file. To clarify, “Listento” is frequency of listening to English, “Vocabul...” is the result of the vocabulary test, “Readte...” is frequency of reading English texts, “ShowFi...” is frequency of watching English shows or films, and “hours” is the amount of hours the subjects play videogames each day.

“Accuracy”, as written beneath each figure, is the degree of correlation between the strongest predictor and the target stimuli. In general, analysis finds weaker correlations between the image tests and the suggested predictors, than between the written idiom tasks and the predictors. It is also noteworthy that the accuracy of the predictor tests on the university students’ results are consistently far weaker than the corresponding analyses for the upper secondary students.

What can be observed and is of note about the strongest correlations is that grammar is the one predictor that is most frequently the most important, being the most important predictor for idiom comprehension for both stimuli both among the upper secondary students and among all participants as a whole. An interesting observation is also the fact that estimated vocabulary size only seems to correlate with proficiency in the image idiom tasks, which, again, are consistently weaker accuracy-wise than the written tasks. Yet another noteworthy observation

is that while grammar seems not to be an important factor to idiom proficiency in university students, the factors that *do* correlate with the idiom test for the university students have little overlap with the rest of the results. Reasons for these observations will be analysed further in chapter 5.

5. Discussion

The hypotheses of this thesis postulate that a) there should be a connection between metalinguistic abilities, as collected from participants through a vocabulary test and a grammar test, and idiom comprehension proficiency, and that b) there should be a connection between exposure to the English language, charted for the participants through the background forms, and idiom comprehension. The study confirms that metalinguistic proficiency in the form of grammar proficiency is strongly correlated with idiom proficiency, but the correlation between exposure and idiom proficiency, while still somewhat relevant for certain forms of exposure, remains less conclusive.

5.1 The native speakers

The native speakers were, over all, very proficient in idiom comprehension with overall high correctness in their answers. There were, however, seven idioms where they scored lower than 75 % correctness. These were “To not be playing with a full deck”, “To cross someone’s mind”, “A hot potato”, “Blockbuster”, “To put all eggs in one basket”, “It takes two to tango”, “Sleep with the fishes” (See Appendix 3 and 4 for their contexts. They are marked with red asterisks See also Appendix 6 for the results of the natives test). Initially, we opted to exclude these idioms from the analysis of our data, but as they had been in the tests given to the two target groups, we saw that, at least among the university students, there was little to no difference between these and other idioms. In none of these idioms did the university students have a correctness of less than 75 %, and in the case of two of them, the results actually surpassed 90 %. Due to this, we opted to keep them in the datasets and proceed with analysis after all.

There are several possible reasons for why the Norwegian university students scored better on these particular idioms than the native speakers. Firstly, the idioms test was constructed by two L2 speakers of English, which might have given the L2 speaking subject a bias. Another possibility is that the Norwegian university students, all highly skilled L2 users studying their second language. In the case of the L2 university students, they may be better trained in metalinguistic awareness, or they may simply have come across more of these idioms through their studies than the native speakers who may or may not be students of English. Since we do not have information about what subjects the native speakers study, this is a difficult possibility to prove or disprove. Due to the differences in compositionality between the idioms, though, “To cross someone’s mind being more on the compositional end of the spectrum, and “A hot

potato” being more on the non-compositional side, there is little possibility of any theories of compositionality coming into play.

Looking at the idioms themselves, they may also be less popular among native speakers than others. Idioms such as “a hot potato” and “don’t put all your eggs in one basket” are both idioms one doesn’t come across too often.

5.2 The proficiency tests

The results of the proficiency tests reflected well what was expected. The differences between the mean results of the upper secondary students and the university students are about the same for the vocabulary and the grammar tests. It is also reasonable to assume that the university students will be more proficient in these tests, as they are all highly skilled users of their L2 and are either in bachelor’s or master’s programs with their L2 as a subject. For this reason, it can easily be assumed that all the university participants are at least interested in, and to some degree passionate about, English. The upper secondary students, on the other hand, have English as an obligatory subject. The interest for the subject may be highly variable, as may be with the proficiency. This spread in ability is, however, useful for the thesis, as it gives a better basis for analysis than if all were on a high proficiency level. The findings in the results of the proficiency tests are in accordance with the GEM (Levorato & Cacciari, 1995, 2002), as the older students are more proficient than the younger.

5.3 The idiom tests

As with the results of the proficiency tests, the results of the idiom tests were also as predicted for the two subject groups, and also in accordance with GEM (Levorato & Cacciari, 1995, 2002) as the older and more experienced students outperformed the younger and less experienced. The university students actually performed so well, they approached ceiling levels for both stimuli, with most participants getting perfect scores on the image test. This made their results more difficult to use in analysis, but it provided a good basis for comparison between the two groups.

The fact that the university students performed so excellently on the image test may be a testament to the test being too easy for them. The images in the test were made to be easily interpretable, but they may in several instances have been too banal. Conversely, the contexts given may, while making the test too simple for good comprehenders such as the university students, not have been enough for the upper secondary students. As suggested by the GEM, as well as by Oakhill et al. (2016), a context may give more of an advantage to the strong

comprehenders as they take more care to read it than do the weaker comprehenders. Another factor is the difference in which the two groups conducted the image test. While the context was always readily available to the university students, the upper secondary students lost access to the context when they pressed the enter key to start the mouse tracking procedure, being left with only the idiom. This loss of context may have had an impact on the results of the upper secondary students.

Another factor that may play into the differences between the two groups is familiarity. Being students of English, the university students are more likely to have come across the idioms previously than are the upper secondary students. One example that highlights this is the results for the idiom “Kick the bucket”. In the case of this particular idiom, the university student scored 100 % correctly, while the upper secondary students scored only 69 % correct, with 27 % opting for the literal response. This idiom being part of image part of the test, the literal option to this idiom was a man with an angry looking facial expression, kicking a bucket. The fact that so many of the upper secondary students chose this alternative shows that they are more likely than not to be unfamiliar with the idiom. This also coincides with (Cooper, 1999), who states that if faced with an unfamiliar idiom, an L2 speaker will often use syntactic processing to attempt to derive the meaning of the expression. As “kick the bucket” is a highly opaque idiom, however, this results in the high number of literal answers in this particular instance.

5.4 The exposure data

The English exposure data was gathered through a questionnaire, which does have its weaknesses. Where the proficiency tests yield unbiased and factual data about participants’ abilities, the questionnaire can result in biased data, either by inaccuracies or forgetfulness. Still, it is the best we have, and it would be difficult to get exposure data in any other way unless the experiment included a special phase where we exposed the subjects to particular data of our own choosing as a control.

5.5 The prediction analysis

The accuracy of the prediction analyses performed show that the written idiom tasks had consistently better correlation with the predictors than the image idiom tasks. This might be connected to the images being a type of stimuli that takes different procedures to process than what was expected. The correctness given in the image tasks, were consistently higher than in the written tasks, however. One possibility is that the image tasks were too simple for the

subjects, the images “giving away” the correct answer more easily than in the written idioms task.

The fact that the correctness of all analyses performed on the university students are low is probably a result of their high scores, being close to and approaching ceiling levels, and having small distributions, making the data less versatile and more difficult to handle for SPSS. This is likely also what leads to the vast difference in predictors.

The fact that grammar is the factor that seems to be overall most strongly correlated to the results of the idioms test is not really a big surprise. This hints towards subjects with high degrees of metalinguistic awareness and linguistic analytical skills, are also the ones most adept at comprehending the figurative language tasks. This coincides nicely with the configuration hypothesis (Cacciari & Glucksberg, 1991; Cacciari & Tabossi, 1988), as well as the Composition model (Gibbs R. W. et al., 1989), supporting their claims that there is at least some semantic analysis included in the processing and comprehension of idioms. It also builds up under the findings by Cooper (1999) that when faced with unknown idioms, an L2 user will attempt to use semantic analysis to deduce the meaning of them.

The fact that estimated vocabulary size seems to have far less of an impact in the predictive analysis, would seem to further support the claims of the Configuration Hypothesis and the Composition Model, suggesting that idiom comprehension may not be as reliant on the mental lexicon after all. These results do in other words not support the non-compositional theories for figurative language comprehension such as the Lexical Representation model (Swinney & Cutler, 1979) and the Direct Access model (Gibbs, 1980, 1984; Schweigert, 1986) Although the significance of vocabulary size is notably smaller than grammar, however, it is still significant, particularly when it comes to the image idiom tasks. This may be due to the idioms in the image idiom tasks, due to being picked for having easily drawable figurative and literal meanings, are also for the most part highly non-compositional idioms. This would make the mental lexicon far more prevalent in the image idiom task than the written idiom task.

The fact that the different kinds of exposure, excluding the unsatisfying accuracy rated results of the prediction analysis applied to the results of the university students, exposure does not seem to have such a great impact on the comprehension of idioms. Truly, the correlations do exist, but they are decidedly second to grammar as a predictor. This seems not to build up under the notion that exposure to language is important for idiom comprehension, as it builds familiarity, and early acquisition of language mirroring what you have been exposed to by

those closest to you (Tomasello, 1992, 2003). However, it does support the notion that although exposure is an important factor, without any other abilities, such as metalinguistic awareness, it has no direct link to idiom acquisition.(Levorato et al., 2004)

5.6 General discussion

There are certain aspects of this study that, in retrospect, could have been performed differently in order to get more extensive and better analysable results with very little effort.

For one is the selection of participants. While the group of university students function well as a control group, and their results spurred us to keep certain idioms in the results in spite of indications from native speakers that they should be taken out, their results were so high, and their competence in English so high, that they were difficult to analyse. What could have been done is to add another group in the study with university students that do not study English. By doing this, the study would benefit from having a group that was comparable to the upper secondary students in composition and, likely, distribution within the group, as well as being comparable to the university students in age group and life experience.

A second aspect that could have been given a bit extra effort was a more systematic classification of idioms. As the study is now, all the idiom data is given as if the idioms are simply regarded as homogenous, but it has been pointed out throughout the thesis that the idioms used range in compositionality as well as predictability and literality. This strongly contradicts the dimensional approach suggested in the article by Titone and Connine (1994), and doing this could have given the study more nuanced results.

6. Conclusion

The aim of this study was to look for possible predictors of idiom comprehension in Norwegian L2 speakers of English. The study collected data from two groups of participants. The first group comprised of 26 adolescents between 16-17 years of age attending the first year of Norwegian upper secondary school and having English as an obligatory subject. The second group comprised of 26 university students studying different English courses at NTNU in their second year or higher. The data collected from the participants was gathered through two proficiency tests, a two-part idiom comprehension test and, and a background questionnaire. A group of 99 native speakers was also subject to the idioms test in order to validate the idioms chosen for the test.

The study hypothesized that a) due to the fact that idioms have differing degrees of compositionality, both vocabulary size as well as grammar proficiency should be possible to identify as predictors of idiom comprehension, and b) due to exposure being important for language acquisition, it should be possible to find aspects of exposure to English that proved to be predictors of idiom comprehension.

The results of the predictive analysis conducted on the data retrieved from this study's experiments seem to suggest that vocabulary is the strongest predictor of the possible predictors suggested in the study. At the same time, vocabulary, while a notable predictor in itself, particularly for the image idiom tasks, is a notably less significant predictor. It is, however, seemingly more predictive for the image idiom task, where many of the used idioms are non-compositional in nature, leading to more active use of the mental lexicon when dealing with them.

When it comes to the exposure elements of the study, it seems that these are less significant than the metalinguistic aspects, the most prevalent of them being frequency of watching cartoons and frequency of listening to English. This is in line with the thought that although exposure is important to figurative language acquisition, it is by itself not enough to comprehend unfamiliar idiomatic expressions.

In conclusion, the study has shown that metalinguistic capabilities such as grammar knowledge and vocabulary size can, as hypothesized, function as predictors of idiom comprehension. The results for the second hypothesis, however, remain more inconclusive, as exposure to figurative language alone is not enough to comprehend idioms.

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Appendices

Appendix 1: Consent form

Forespørsel om deltakelse i forskningsprosjektet

Forskningsprosjekt på Engelsk språk og ordtak

Bakgrunn og formål

Denne studien er en del av et mastergradsprosjekt der vi er interesserte i å avdekke og kartlegge deres evner innen engelsk som andrespråk og da spesielt med fokus på ordtaksforståelsen. Vi studerer på NTNU ved fremmedspråklig institusjon på Dragvoll, og samarbeider med veiledere Mila Vulchanova og Giouse Baggio om dette prosjektet. Dere er valgt ut fordi vi ønsker en genuin gruppe med norske 16/17-åringer som har engelsk som andrespråk eller eventuelt tredje.

Hva innebærer deltakelse i studien?

Om dere samtykker til å delta vil dere bidra med veldig god informasjon som vil kunne gi oss mer kunnskap om engelsk språk i Norge. Dette kan igjen bidra til å gjøre f. eks. utdanning og opplæring bedre på sikt.

Dette studiet vil ikke ha noe å si for din karakter eller deltakelse i skolen ellers. Det bes om at alle svarer ærlig og ikke prøver å gå gjennom noen av testene mer enn en gang, da dette vil svekke våre resultater.

Selve prosjektet vil trenge deres aktive deltakelse i cirka 1-2 skoletimer. Vi vil begynne med to «tester» der dere får svare på noen spørsmål om engelsk grammatikk og ordtak. I grammatikk-delen vil dere få spørsmål om dere har kjennskap til en rekke ord, mens i ordtak-delen vil dere få presentert 30 ordtak i tur, med fire alternative svar til hvert av dem. Den andre delen har vi med oss egne laptop, og dere vil få en undersøkelse bestående av 30 ordtak med fire mulige alternative svar som vi har tegnet. Med dette får vi samlet all den informasjonen vi trenger, og det vil bli analysert på et senere tidspunkt, selvfølgelig helt anonymisert.

Hva skjer med informasjonen om deg?

Alle personopplysninger vil bli behandlet konfidensielt. Dere vil få eller har fått utdelt noen koder av lærere som vil bli brukt på testen. Listen med navn og koder har lærer kontroll på under studiet, men etter dette vil det bli låst inne i en skuff av vår veileder i et område på NTNU der man trenger et spesielt nøkkelkort for å få tilgang. Deres personopplysninger blir altså ikke tilgjengelig for noen, og i selve studiet er dere kun en gruppe med koder og derfor anonyme. For folk som leser studiet eller funnene våre vil det ikke være på noen måte mulig å gjenkjenne hvem som har deltatt.

Den 15.12 vil prosjektet slutte, og informasjonen vil forbli innlåst.

Frivillig deltakelse

Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli anonymisert.

Studien er meldt til Personvernombudet for forskning, Norsk samfunnsvitenskapelig datatjeneste AS.

Samtykke til deltakelse i studien

Jeg har mottatt informasjon om studien, og er villig til å delta

(Signert av prosjektdeltaker, dato)

Appendix 2: Background questionnaire

Bakgrunnsinformasjon for forskningsprosjekt om andrespråksforståelse

Tusen takk for at du har sagt ja til å delta i vårt forskningsprosjekt om andrespråksforståelse. I dette skjemaet ber vi om bakgrunnsinformasjon som er nødvendig for at resultatene fra undersøkelsen skal kunne brukes.

Informasjonen som du oppgir vil bli behandlet uten direkte gjenkjenning opplysninger. En kode knytter deg til dine opplysninger gjennom en deltakerliste. Det er kun autorisert personell knyttet til prosjektet som har adgang til deltakerlisten og som kan finne tilbake til informasjonen. Del B, C og D av dette skjemaet vil bare oppbevares med koden. All informasjon vil bli anonymisert ved prosjektslutt. Det vil ikke være mulig å identifisere deg i resultatene av studien når disse publiseres.

Vi ber deg legge merke til at skjemaet har totalt 6 sider.

Vegard Bergh & Anders Hauge Aurland

Studenter ved lektorutdanningen, ved Institutt for språk, Engelsk, NTNU

Del A: Personlig informasjon

Studieretning _____ **og**

trinn: _____

Fødselsår _____

Kjønn **Kvinne** **Mann**

Bostedskommune _____

Deltakerkode:

Del B: Språklig bakgrunn

Morsmål

Er norsk morsmålet ditt?

- Ja Nei

Hvis ja, har du andre morsmål i tillegg?

- ja

Nei

Hvis ja, hvilke(t) språk? _____

Hvilket språk bruker dere hjemme? _____

Hvor ofte leser du tekst skrevet på norsk?

- Hver dag Flere ganger i uka Et par ganger i uka Av og til Aldri

Hvor ofte skriver du tekst på norsk?

- Hver dag Flere ganger i uka Et par ganger i uka Av og til Aldri

Engelsk og andre fremmedspråk

I engelsk, hvordan vurderer du ferdighetene dine på hvert av disse områdene?

	Grunnleggende	Middels	Avansert	Flytende
Lesing				
Skriving				
Snakke				
Lytte				

Totalt				
--------	--	--	--	--

Har du bodd i, eller hatt lengre opphold i, et land hvor engelsk er hovedspråk?

Ja Nei

Hvis ja, hvor lenge varte oppholdet/oppholdene? _____

Har du vært på kortere (under 14 dager) reise i et land hvor engelsk er hovedspråk?

Ja Nei

Har du bodd i, eller hatt lengre opphold i, et land hvor annet enn engelsk er hovedspråk?

Ja Nei

Hvis ja, hvor var det, og hvor lenge varte oppholdet/oppholdene? _____

Hvilke språk kan du utover morsmålet ditt og engelsk?

Språk	Nivå			
	Grunnleggende	Middels	Avansert	Flytende
Tysk				
Fransk				
Spansk				
-Angi språk				
-Angi språk				
-Angi språk				

Hvor ofte leser du tekster på engelsk?

- Hver dag Flere ganger i uka Et par ganger i uka Av og til Aldri

Hvor ofte skriver du tekster på engelsk?

- Hver dag Flere ganger i uka Et par ganger i uka Av og til Aldri

Hvor ofte lytter du til/hører du engelsk?

- Hver dag Flere ganger i uka Et par ganger i uka Av og til Aldri

Hvor ofte ser du på engelskspråklige serier/filmer?

- Hver dag Flere ganger i uka Et par ganger i uka Av og til Aldri

Når du ser på engelskspråklige filmer, hvilken av disse alternativene bruker du mest?

- Undertekst på norsk Undertekst på engelsk Ingen undertekst

Hvor ofte ser du på engelskspråklige tegneseriefilmer/serier?

- Hver dag Flere ganger i uka Et par ganger i uka Av og til Aldri

Hvor ofte spiller du engelskspråklige data/TV-spill?

- Hver dag Flere ganger i uka Et par ganger i uka Av og til Aldri

Hvilke type spill spiller du? _____

Hvor mange timer cirka per dag? _____

Hvor mye TV ser du på hver dag?

- 7 timer eller mer 5-6 timer 3-4 timer 1-2 timer aldri eller nesten aldri

Del C: Andre faktorer i språklæring

Har du, eller har du hatt, problemer med synet utover normal brillebruk?

- Ja Nei

Har du, eller har du hatt, problemer med hørselen?

- Ja Nei

Har du, eller har du hatt, språkvansker av noe slag (spesifikke språkvansker, lese-/lærevansker eller lignende)?

Ja Nei

Har du, eller har du hatt, andre diagnoser som kan tenkes å påvirke språklæring (ADHD, autisme eller lignende)?

Ja Nei

Er du venstrehendt?

Ja Nei

Del D: Vokabulartest og grammatikktest

Resultat vokabulartest:

Resultat grammatikktest:

Appendix 3: Idiom tasks with written alternatives

English idioms form 1

Choose the correct idiom from the 4 alternatives in each question

What is the meaning of the expression “blessing in disguise”?

I assumed that when my new roommate moved in, all hell would break loose. Turns out she instead was a blessing in disguise.

- Someone who's up to no good
- A bad start means a bad ending
- A roommate who hides his or her qualities
- A misfortune which eventually turns out positive

What is the meaning of the expression “roll up one’s sleeves”?

As a nation, it is time for us to roll up our sleeves and give homeless a home and their dignity back. We simply cannot stand back and passively watch this problem grow out of control.

- To prepare for hard work
- To call for the big bucks to roll in
- To use less money on ourselves in order to give some more to the less fortunate
- To be cheap

What is the meaning of the expression “Icing on the cake”?

I knew that my parents would come to the graduation ceremony, but that my grandparents would come was the icing on the cake.

- An extra enhancement
- A surprise
- More than necessary
- An intimidating thought

What is the meaning of the expression “more or less”?

She had more or less decided to get a new job. She needed some new challenges.

- Wholeheartedly
- To dream of bigger things
- Slowly but certainly
- To some extent

What is the meaning of the expression “be game”?

Lauren was posting an invite to an event on Facebook asking: “who is game?”.

- To be willing to play a game
- To be excited about an upcoming event
- To be happy
- To be agreeable to participate in something

What is the meaning of the expression “take charge”?

It was complete chaos after the accident. People were either running around creating more panic or just standing there watching. Luckily, a nurse arrived and took charge.

- To be responsible

- To make someone pay for something
- To take control over something
- To reload one's batteries

What is the meaning of the expression “rule of thumb”?

If you receive an e-mail from your bank asking for your password, a good rule of thumb is simply to delete it. Your bank would not ask for such information.

- An answer on how to deal with problems
- A general principle developed by experience
- To act cautiously in order to protect sensitive information and your computer
- To measure something using your thumb as a ruler

What is the meaning of the expression “put wool over people’s eyes”?

After reading George Orwell’s novel “1984” I kept fearing our politicians were putting wool over our eyes. I really hope they’re not playing us around.

- To impose ignorance on people by hiding the truth behind less important matters
- To play games with other politicians
- To pretend to know about novels that one haven't actually read
- To advertise for clothes on TV and radio

What is the meaning of the expression “not playing with a full deck”? *

“That boy is definitely not playing with a full deck”, “He’s desperately trying to lick his elbow although he clearly won’t make it”.

- Someone who is not especially clever
- To miss a few pieces in a puzzle
- To try really hard
- Someone who wants to accomplish something impossible

What is the meaning of the expression “turn the tables”?

“It’s time to turn the tables” she whispered. She had planned this for weeks. This time he would be the victim!

- To change a situation so that someone's position is the opposite of what it was
- To plan revenge
- To turn all the tables you see in order to change a situation
- To redecorate

What is the meaning of the expression “cross someone’s mind”? *

It crossed my mind when I read the article about the fireman who rescued five people – my purpose in life is to be a fireman.

- To suddenly think of something
- To feel a divine inspiration and calling from above
- To wish you were brave
- To think about something for a short time

What is the meaning of the expression “couch potato”? *

Yesterday I found six steps for how to stop being a couch potato on Wikihow. The first step was to unplug the television.

- A person who has to eat chips while watching TV
- A person who is unemployed and has nothing to do
- A person who spends much time sitting or lying down, usually watching TV
- A person who likes to eat dinner while watching TV

What is the meaning of the expression “the ball is in your court”?

The police officer who stopped Greg for speeding in traffic told him that the speed was dangerously high and that it could've had grave consequences. “So what do you have to say in your defence? The ball is entirely in your court, Mr.”

- It's your turn to act or speak
- The car was in the wrong court at the wrong time
- You should start apologising
- You will meet me in court

What is the meaning of the expression “back to the drawing board”?

After a disastrous game of football, the coach called in the team and uttered “Well, boys, back to the drawing board it is!”

- To draw football in detail
- To perform an activity exactly as the drawings tell you
- To retire from activity to start drawing
- To step back and make new plans

What is the meaning of the expression “don't quit your day job”?

Paul insisted that his paintings were the best thing he'd ever done. His friends all laughed and said “Don't quit your day job, bro!”

- An indication that you're not very good at what you do besides your profession
- A pleasant compliment given to artists who show promise
- To lose a job because of a horrible mistake
- Something you say when friends laugh together

What is the meaning of the expression “add insult to injury”?

The boss in our company asked everyone to humbly accept a pay cut to make up for the bad economy. We felt that this was only adding insult to injury.

- To find a new solution
- To disrespect someone who is injured and thus cannot respond
- To act in a way that makes a bad situation worse
- To be very rude

What is the meaning of the expression “actions speak louder than words”?

The teacher was pleased when Johanna gave him the money he had been missing for days. “I can't really explain this”, she says. “Actions speak louder than words” the teacher responded.

- That actions always are better than talking
- To return things without hesitating
- To talk less

- That sometimes the act of doing something can explain more than anything you could say

What is the meaning of the expression “penny for your thoughts”?

Mary seemed very thoughtful one morning. John said “Ha! Penny for your thoughts, Mary!”.

- A trick one can play to get money from unaware friends
- To ask for a quick loan
- A way to have someone ask you a personal question
- To wonder what is on someone's mind

What is the meaning of the expression “hot potato”? *

The political parties seemed to avoid the immigration topic before the election. My friend said that “it certainly is this election’s hot potato”.

- A potato so hot that it will should be put in the refridgerator
- A subject which is considered harmful to oneself and thus gets ignored by everyone
- A subject that causes much fear
- Something that can burn your hands

What is the meaning of the expression “beat about the bush”?

Let’s not beat about the bush –the design was rejected. The employer said it was horrible. We simply have to start all over again.

- To run away into the bush in order to avoid facing challenges
- To avoid talking about a difficult subject because you are worried about upsetting the person you are talking to
- To give up
- To get angry at oneself when one has done something that does not meet the expectation of others

What is the meaning of the expression “fit as a fiddle”?

I was shocked when I got the news. I felt as fit as a fiddle until the doctor showed me the negative results.

- To be in very good health
- To feel secure
- To be positive
- To be strong

What is the meaning of the expression “piece of cake”?

They all thought the match would be a piece of cake but they were wrong. The other team was faster.

- To be satisfactory
- The best part of the cake to eat
- The reward you get for winning
- Something which is easy

What is the meaning of the expression “at one’s fingertips”?

She has the book at her fingertips. If you wonder where to find the information she would be the one to ask.

- To have something in your hand
- A few coins that you grab between your fingertips
- To have quick access
- To be well prepared and in control

What is the meaning of the expression “at the top of one’s lungs”?

I woke up this morning to my neighbour singing “My heart will go on” at the top of his lungs.

- To breathe in a controlled manner
- As loudly as one's voice will allow
- To have a wish to annoy someone
- As out of tune as possible

What is the meaning of the expression “on a roll”?

I had been working for nine hours but I couldn’t stop. I was on a roll.

- To eat spring rolls while working
- To be in the midst of a series of successes
- To be a work-a-holic
- To live up to the expectations in order to stay on the company's payroll

What is the meaning of the expression “take advantage of”?

In today’s newspaper I read an article with the following headline: “Propane company takes advantage of customers”. It turned out that I was one of them. I checked the last month’s bill – they had overcharged me too!

- To improve a situation
- To do what seems best for the company
- To exploit
- To disrespect

What is the meaning of the expression “blockbuster”? *

Mark and Steve were fighting about which blockbuster to bring home and watch: “Spectre” or “The Dark Knight Rises”?

- Movies that will blow the viewer's mind
- A new man on the block
- Explosives and gunshots in huge numbers
- Something produced to achieve high popularity and huge sales

What is the meaning of the expression “by the book”?

He was quite certain that he would not be in trouble when the police came. He had done everything by the book.

- When a movie is based on a book
- To do exactly what your employer tells you to do
- To follow the rules exactly
- To do all your work by the book shelf

What is the meaning of the expression “slippery slope”?

The question of assisted death is a slippery slope in terms of moral and legal considerations.

- A path which is likely to lead to failure or serious trouble
- An icy hill
- A personal question
- A question that requires a decision

What is the meaning of the expression "not my cup of tea"?

Some people love skiing, but it's not my cup of tea. I prefer swimming.

- Something you enjoy or like
- Something you don't like
- A borrowed cup used for drinking tea
- A type of tea you don't like

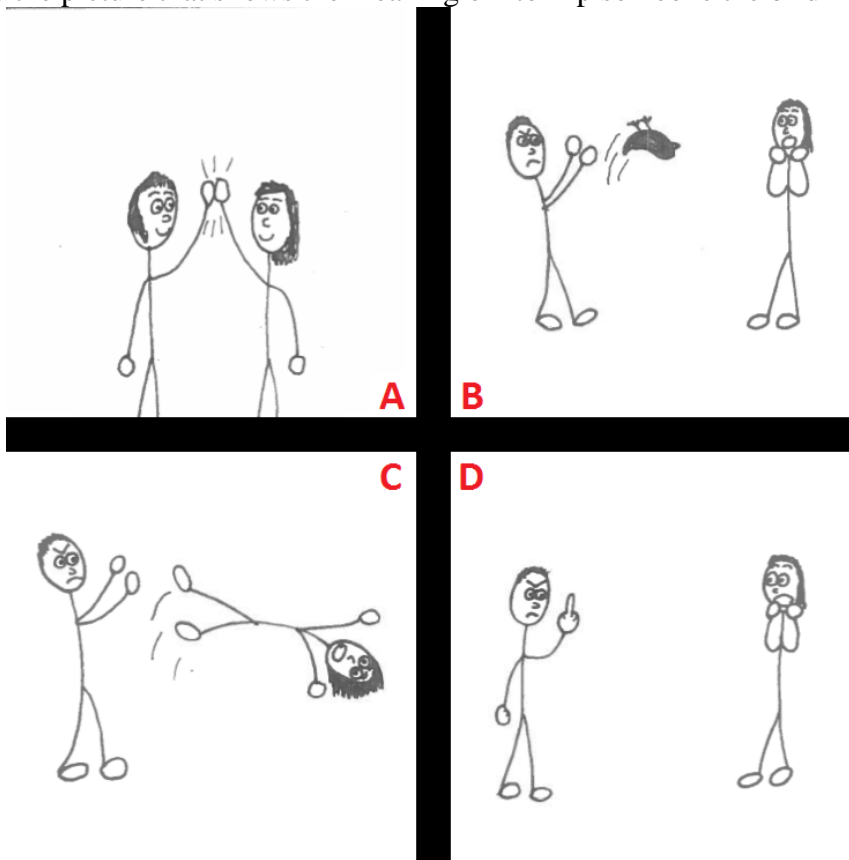
What is the meaning of the expression "sweet tooth"?

Every time we watch a movie with Hans, he has to bring all the candy. I don't understand how he can eat all that sugar?

- To have diabetes
- To have a gold tooth
- To desire to eat sweet foods
- To indicate in a humoristic way that one has a problem with one's health

Appendix 4: Idiom tasks with image alternatives

Choose the picture that shows the meaning of "to flip someone the bird"

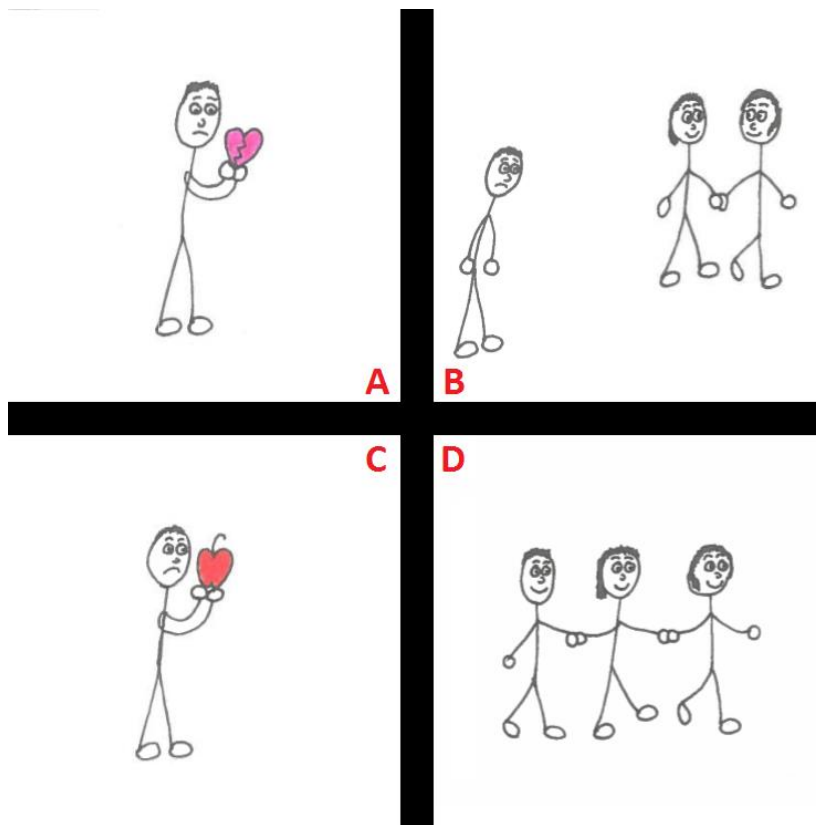


Flip the bird

Tim was angry with Sara. He flipped her the bird.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to have a broken heart"

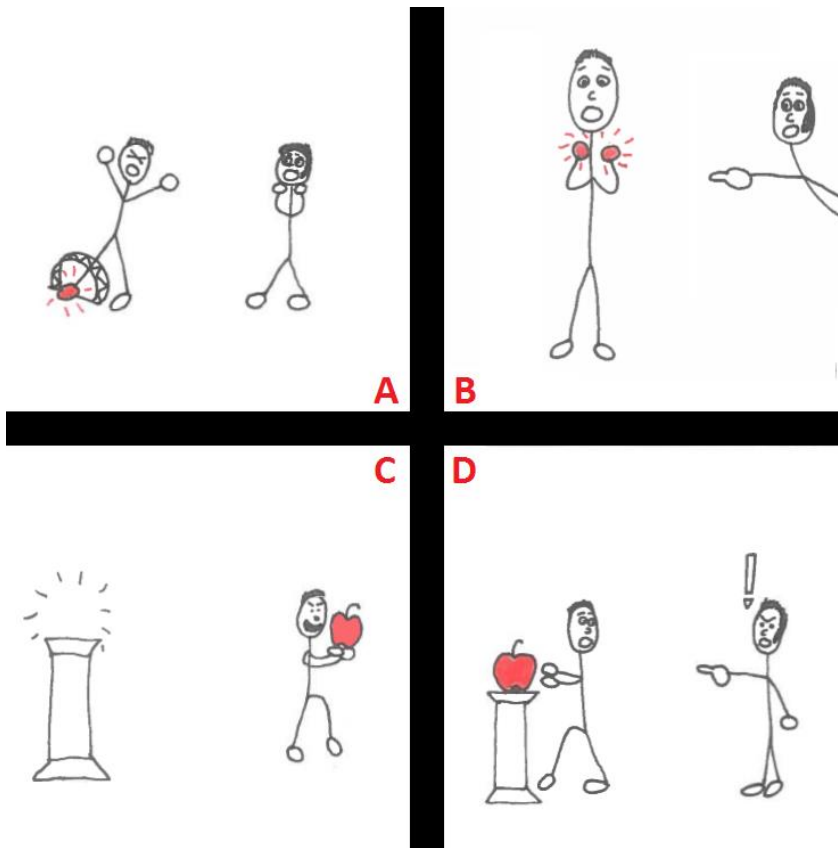


Broken heart

Tim was sad. He had a broken heart.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to be caught red handed"

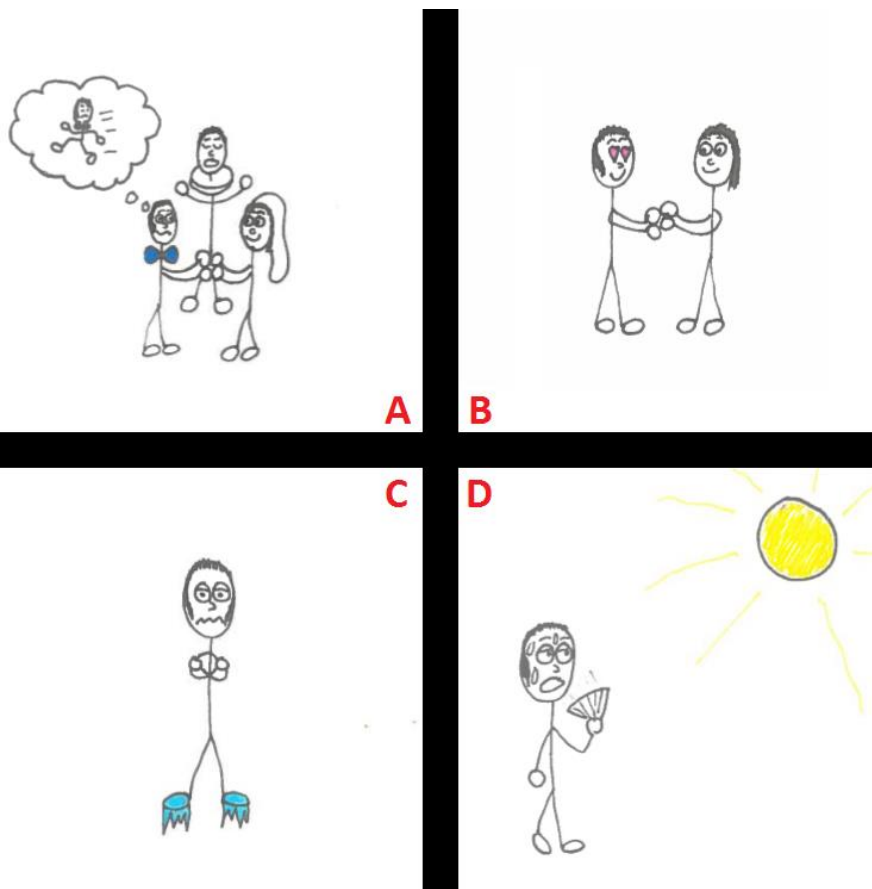


Red handed

Tim was up to no good. Jim caught him red handed.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to have cold feet"

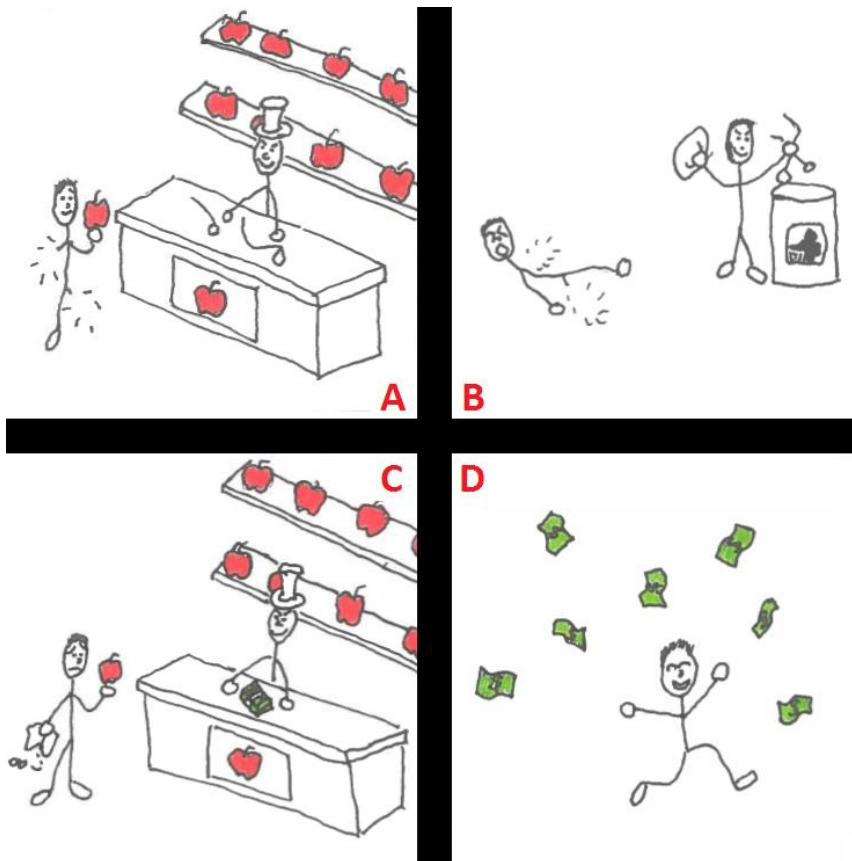


Cold feet

Jim was starting to regret his decision. He was having cold feet.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to cost an arm and a leg"

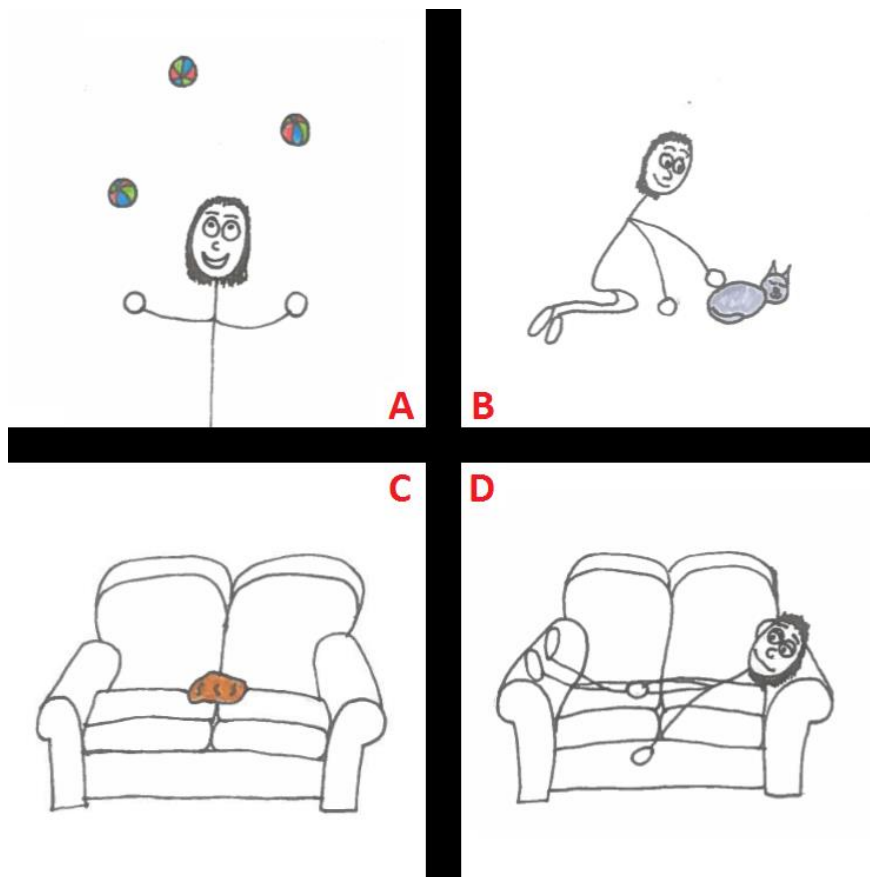


Cost an arm and a leg

Tim really wanted the apple. It cost him an arm and a leg.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to be a couch potato"

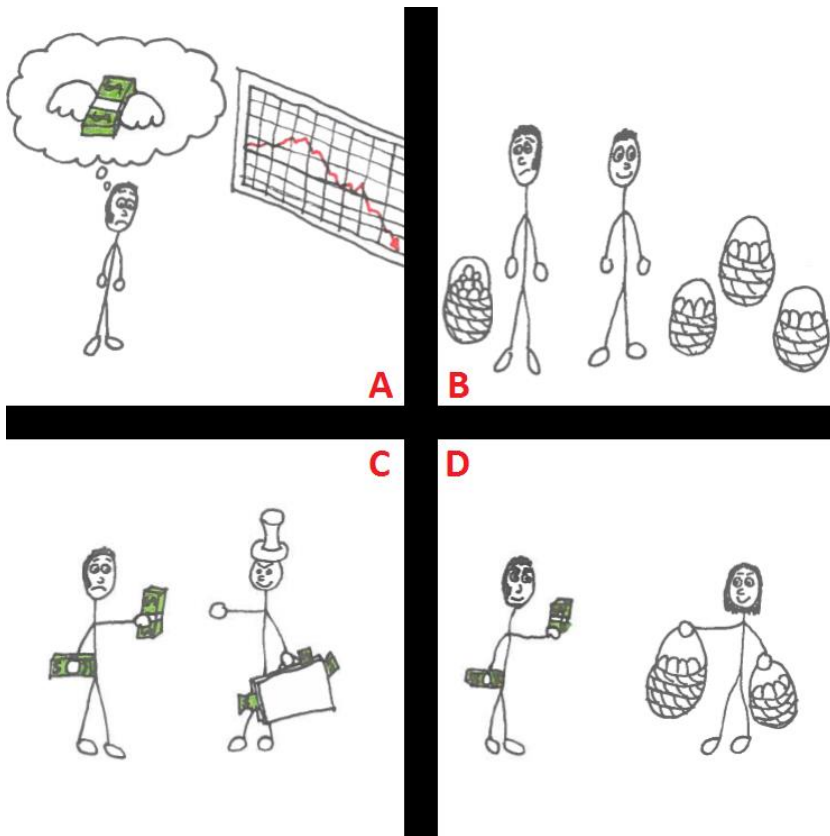


Couch potato *

Sara likes to relax. Some would call her a couch potato.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to put all your eggs in one basket"

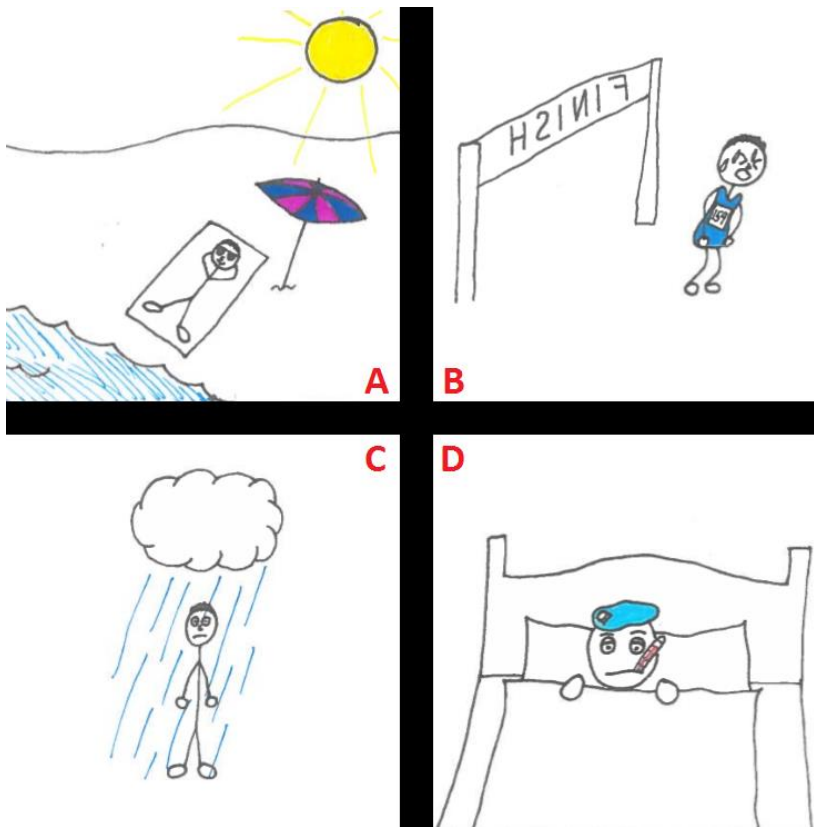


Put all your eggs in one basket *

Jim made a poor decision. He shouldn't have put all his eggs in one basket.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to feel a bit under the weather"

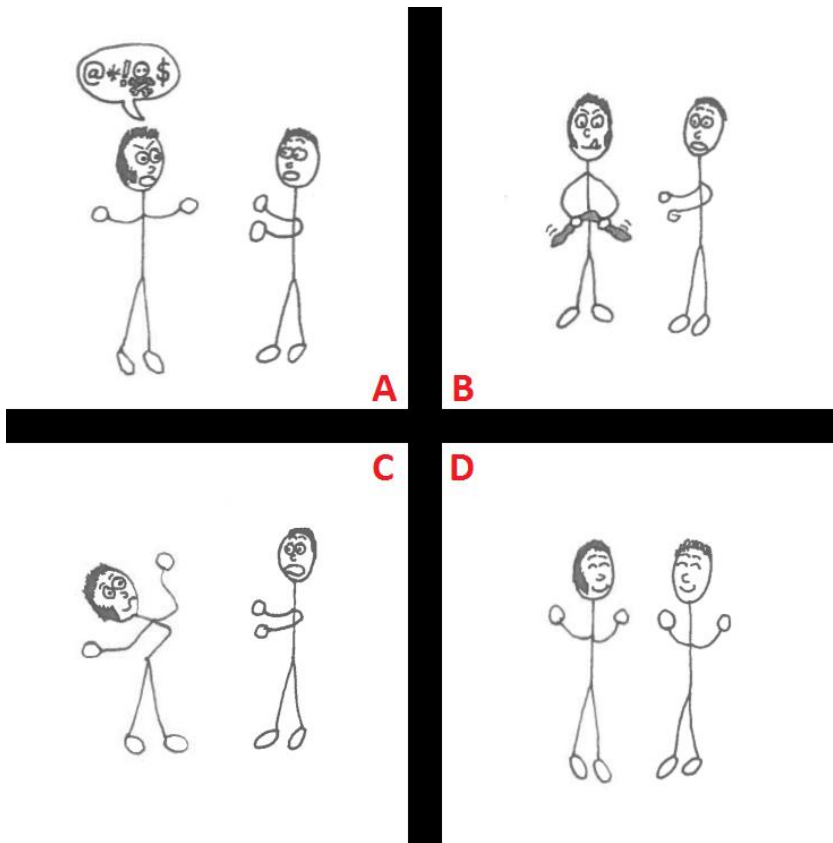


Feeling a bit under the weather

Tim was having a rather poor day. He was feeling a bit under the weather.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to get bent out of shape"



Get bent out of shape

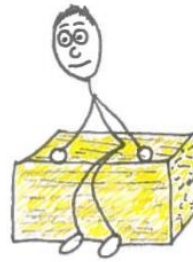
Jim was in a bad mood. Tim told him to not get bent out of shape.

- A
- B
- C
- D

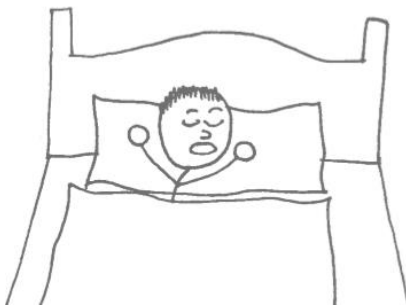
Choose the picture that shows the meaning of "to hit the hay"



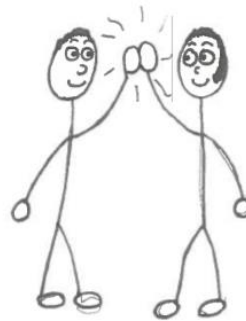
A



B



C



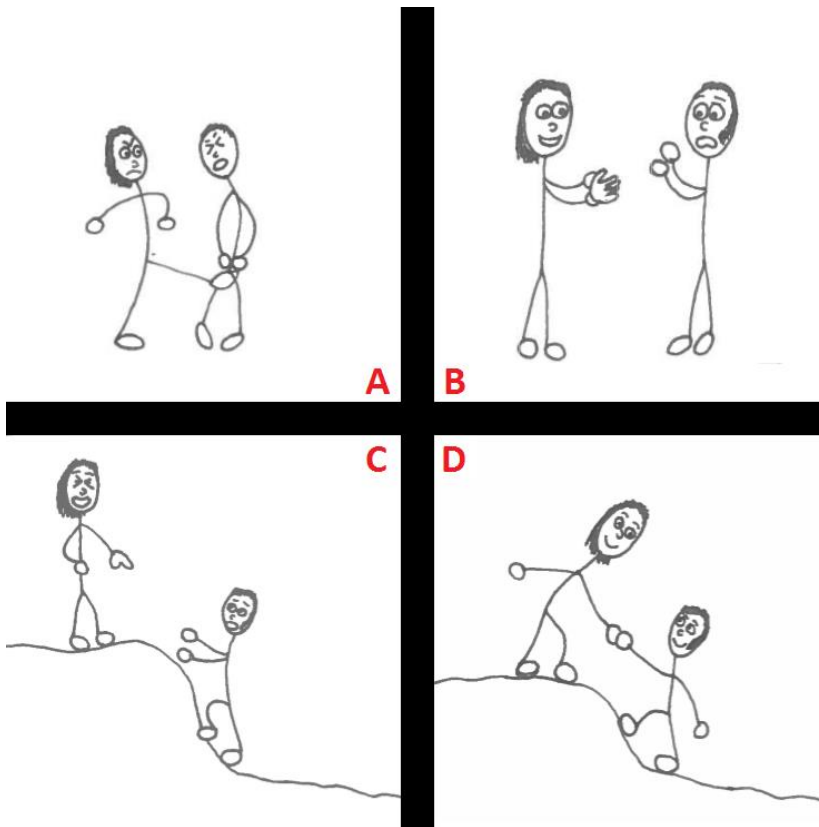
D

Hit the hay

Tim was feeling tired. He decided to hit the hay.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to give someone a hand"

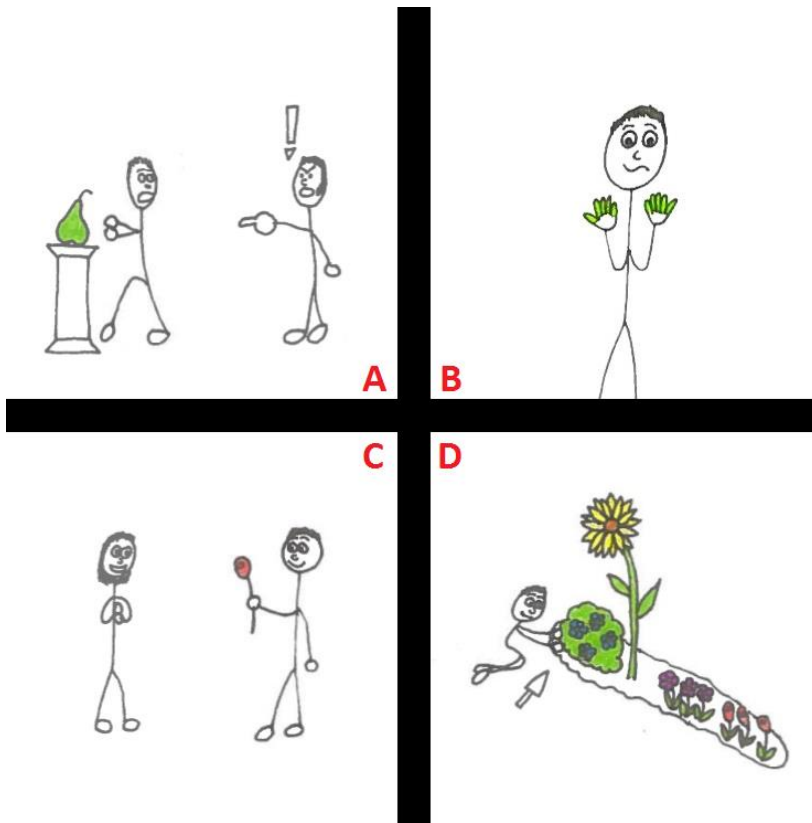


Give someone a hand

Sara saw Jim was in trouble. She decided to give him a hand.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to have green fingers"

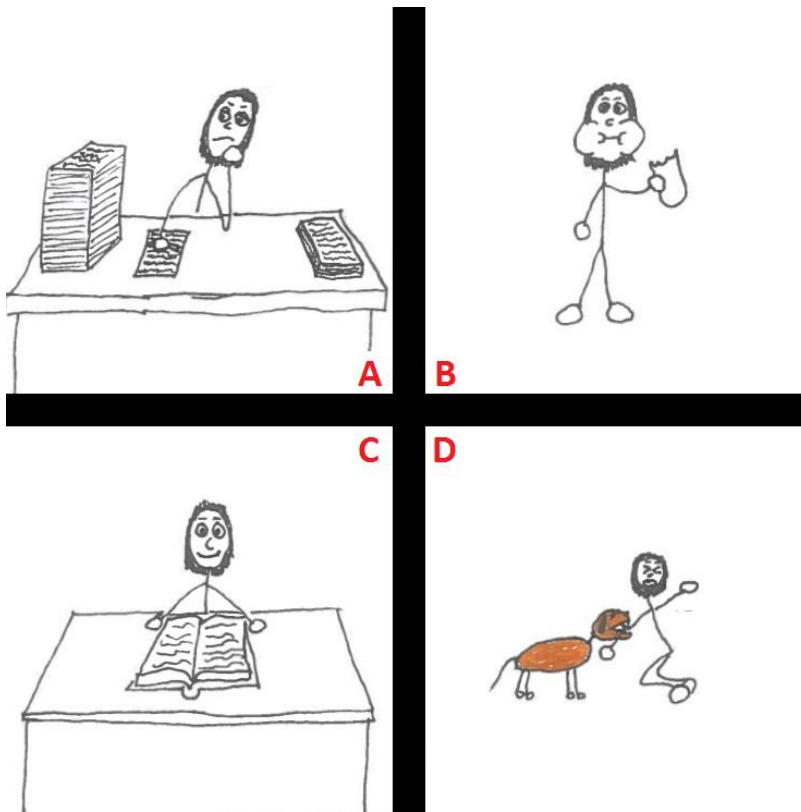


Green fingers

Tim is good with plants. He has green fingers.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to bite off more than you can chew"



Bite off more than you can chew

Sara had made a mistake. She had bitten off more than she could chew.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to kill two birds with one stone"

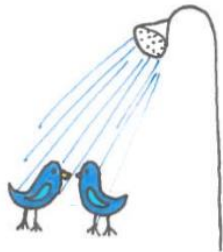


A

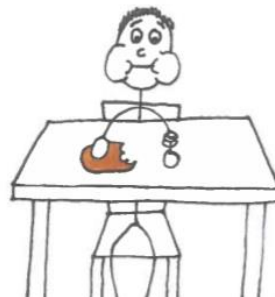


B

C



D

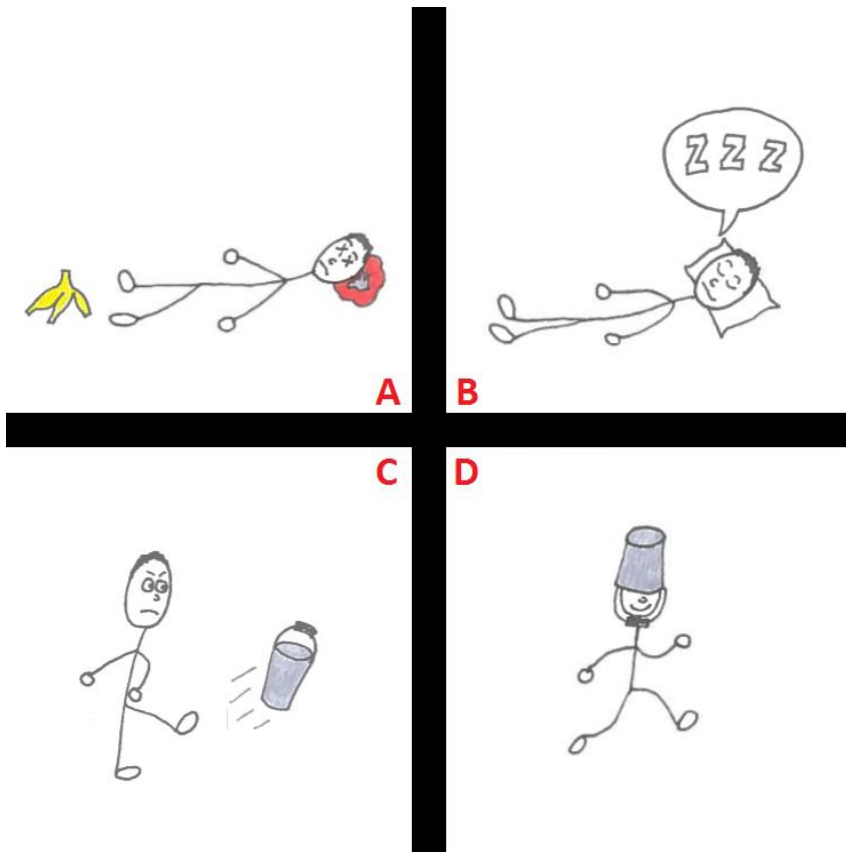


Kill two birds with one stone

Tim was in a hurry. He decided to kill to birds with one stone.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to kick the bucket"

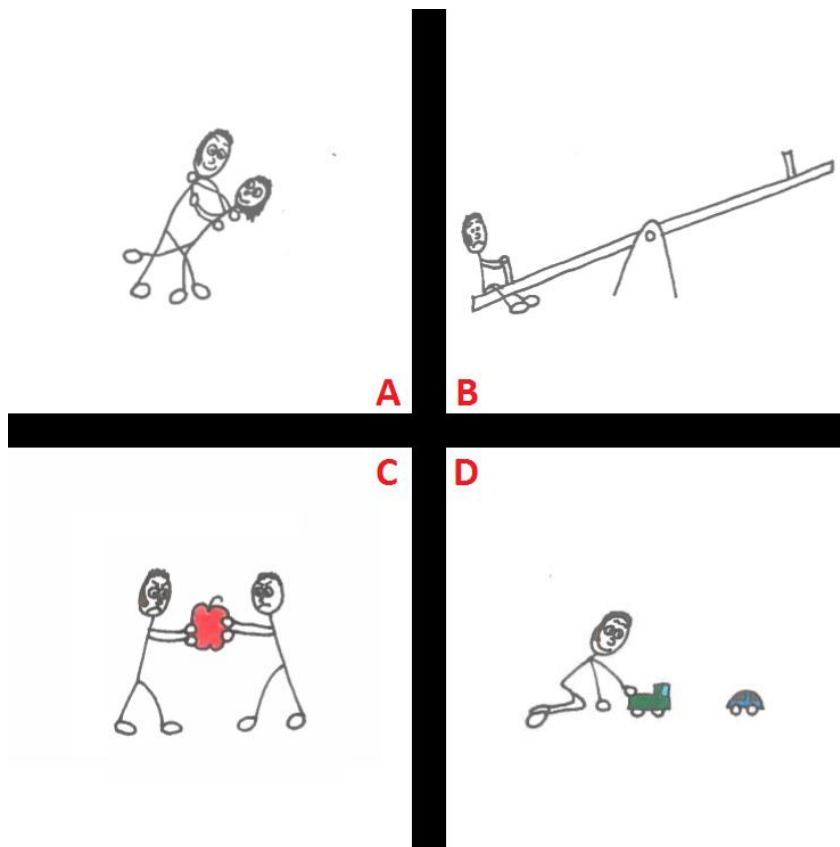


Kick the bucket

Tim had an accident. He kicked the bucket.

- A
- B
- C
- D

Choose the picture that shows the meaning of "it takes two to tango"

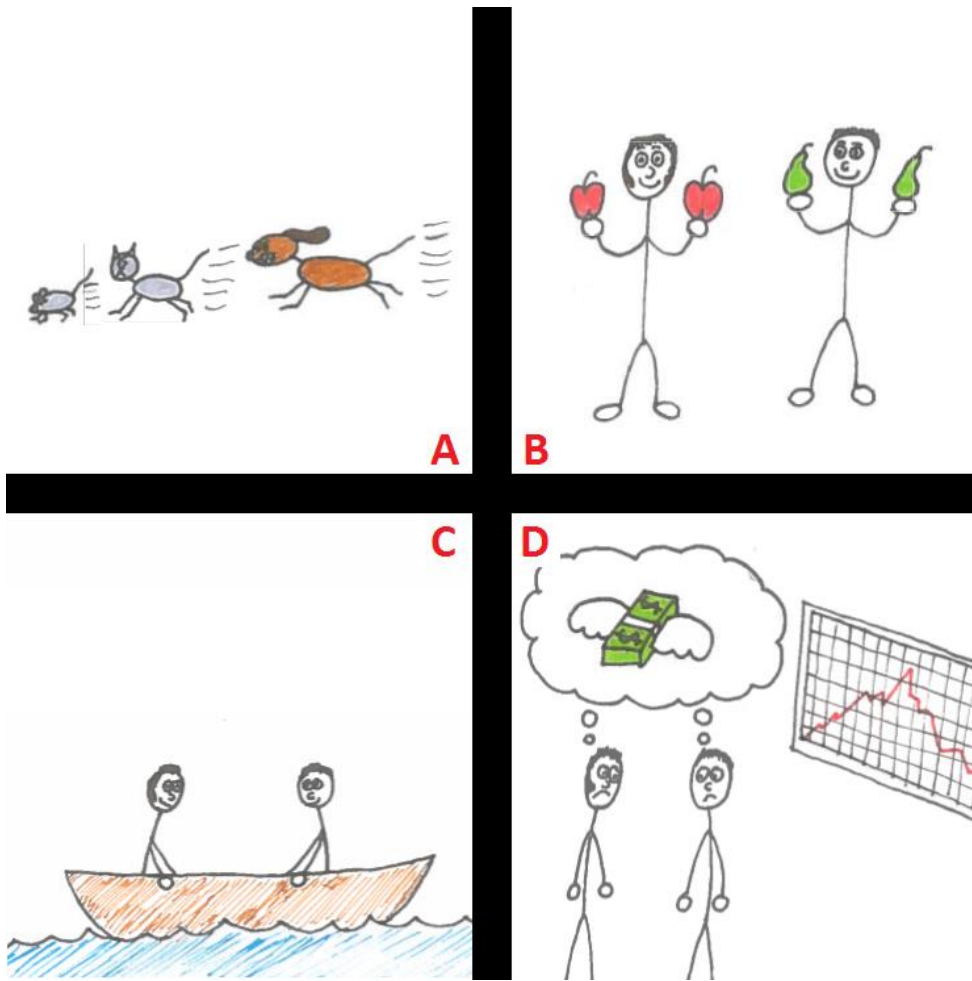


It takes two to tango *

Jim couldn't do it alone. He quickly understood it takes two to tango.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to be in the same boat"

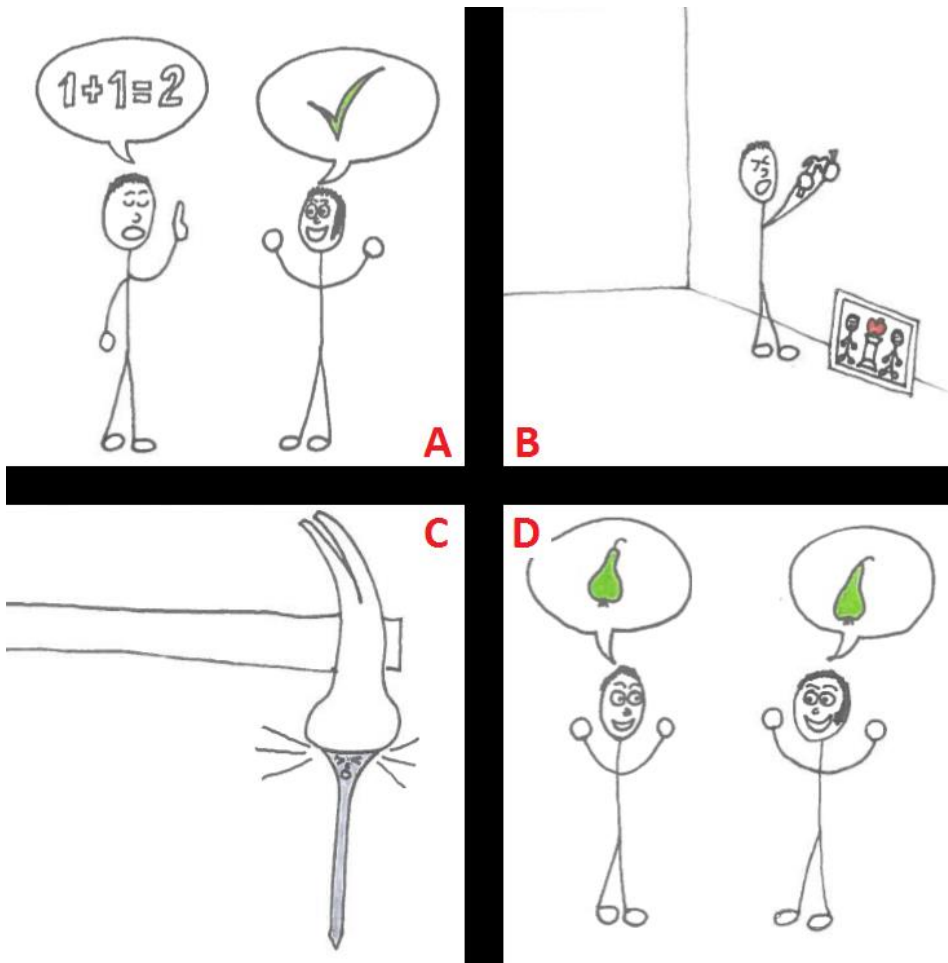


Be in the same boat

Jim and Tim both made poor choices. Now they are in the same boat.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to hit the nail on the head"

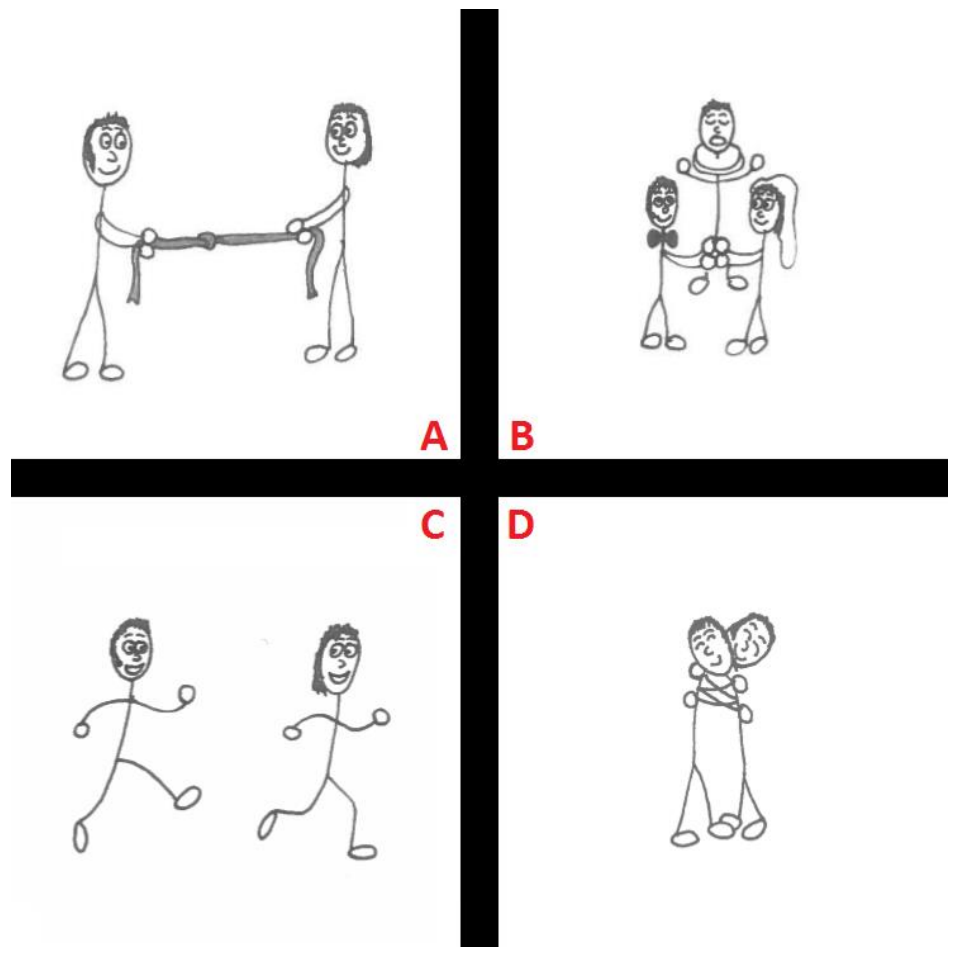


Hit the nail on the head

Tim is very clever. He often hits the nail on the head.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to tie the knot"



Tie the knot

Jim and Sara had been waiting for a long time. They finally decided they would tie the knot.

- A
- B
- C
- D

Choose the picture that shows the meaning of "it's raining cats and dogs"

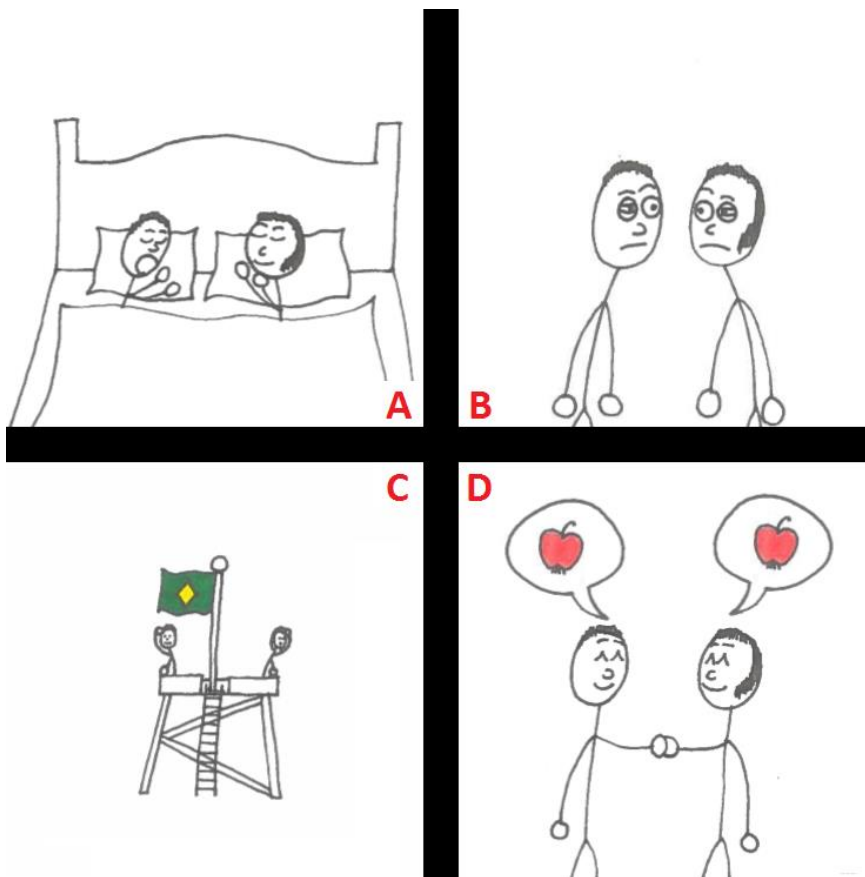


It's raining cats and dogs

Jim decided to go outside. Then it started raining cats and dogs.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to see eye to eye"

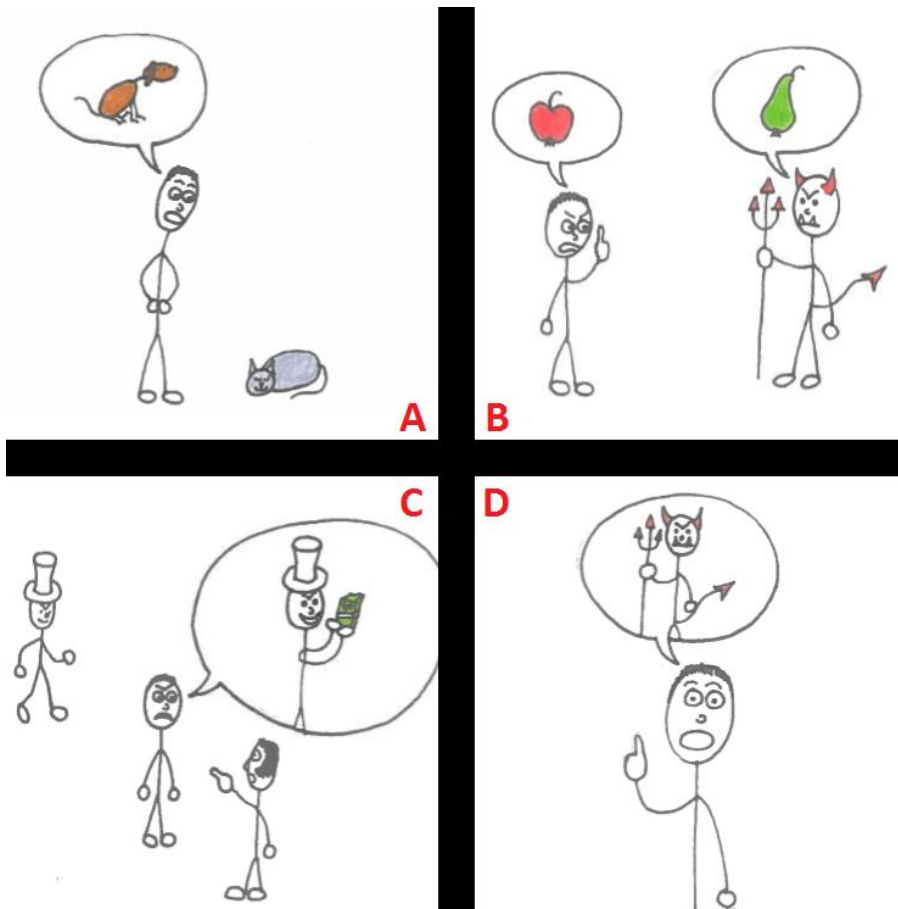


See eye to eye

Jim and Tim have been friends for a long time. That is because they very often see eye to eye.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to speak of the devil"

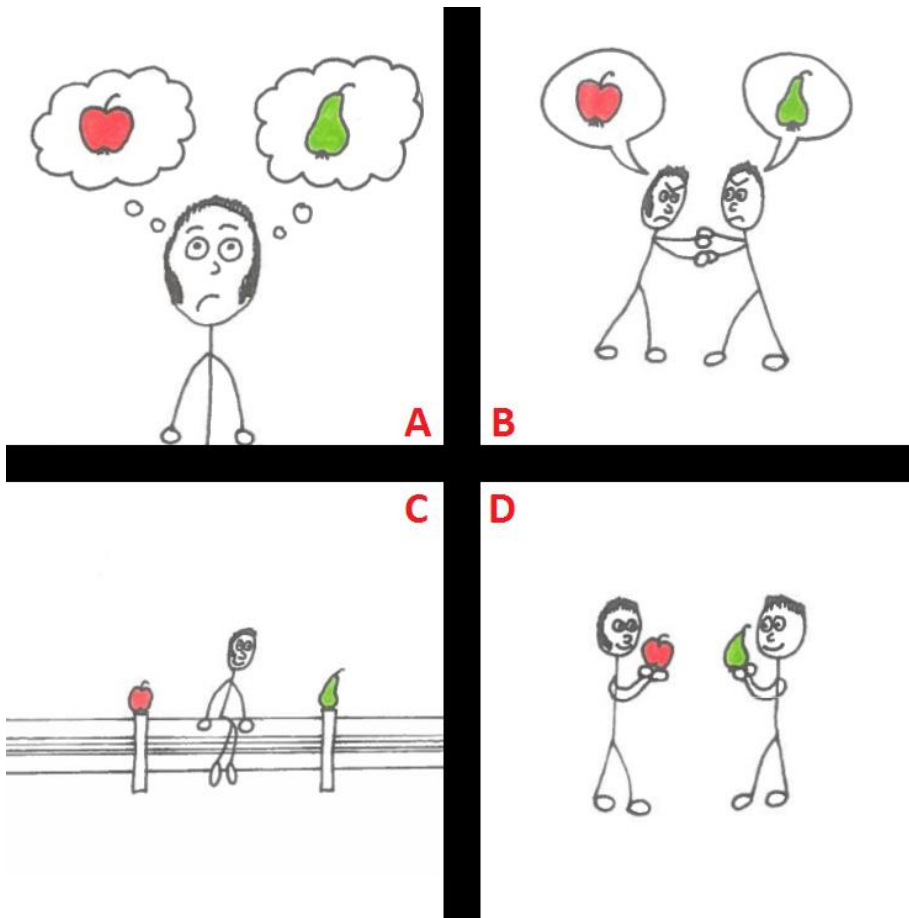


Speak of the devil

Tim is saying mean things about others. Jim warns him by saying "Well, speak of the devil".

- A
- B
- C
- D

Choose the picture that shows the meaning of "to sit on the fence"

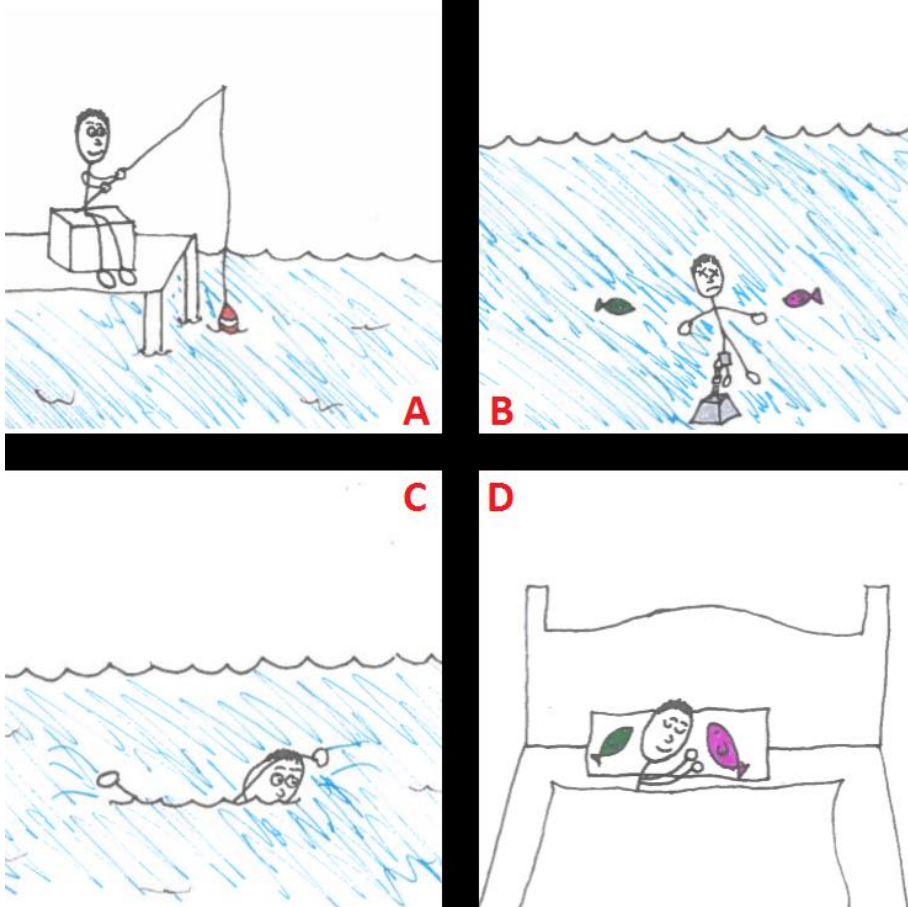


Sit on the fence

Jim is having a hard time. He is sitting on the fence

- A
- B
- C
- D

Choose the picture that shows the meaning of "to sleep with the fishes"

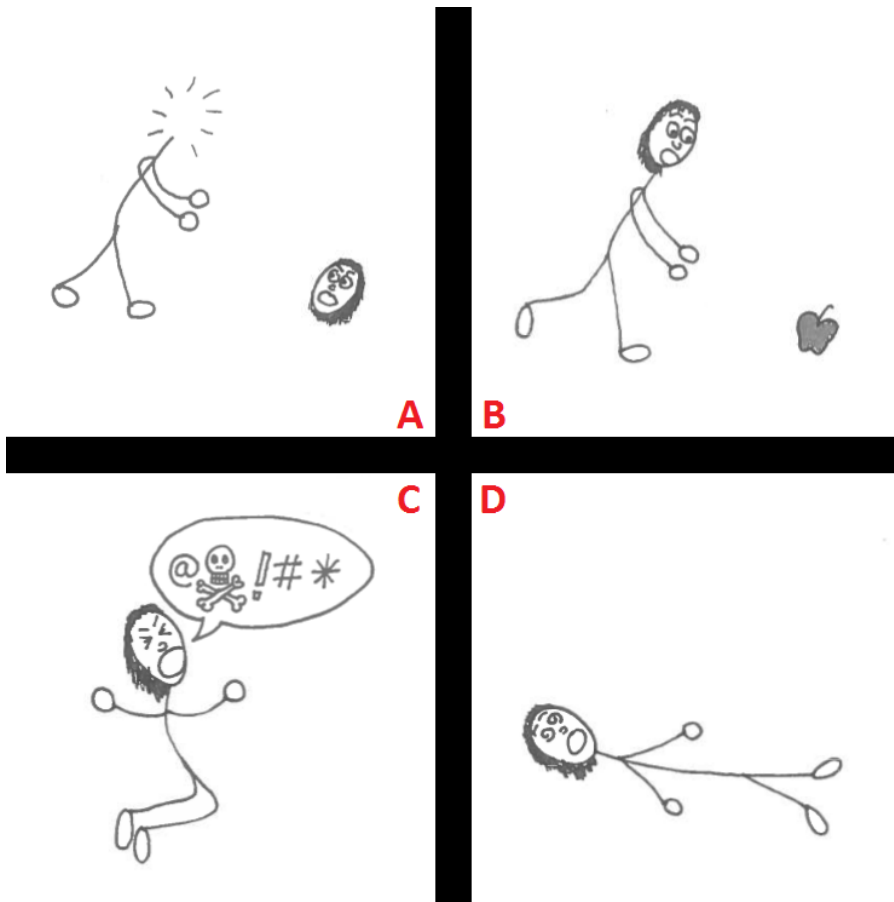


Sleep with the fishes *

Someone decided to take care of Tim. Now he is sleeping with the fishes.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to lose your head"

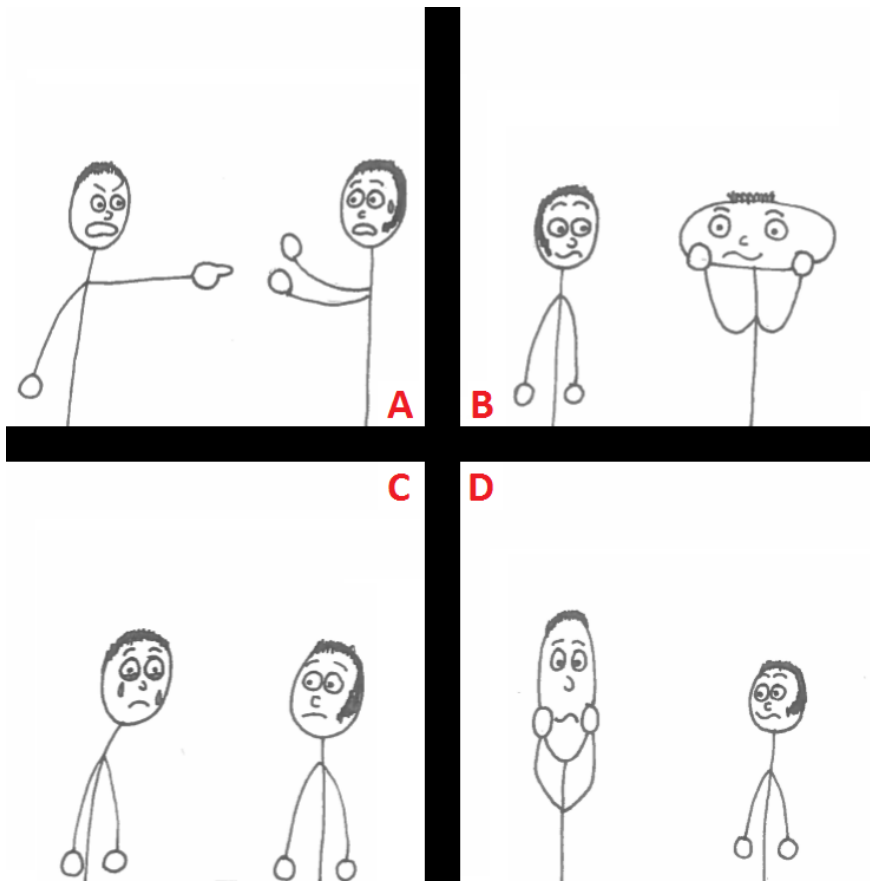


Lose your head

Sara has had a long, hard day. Now she's losing her head.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to pull a long face"

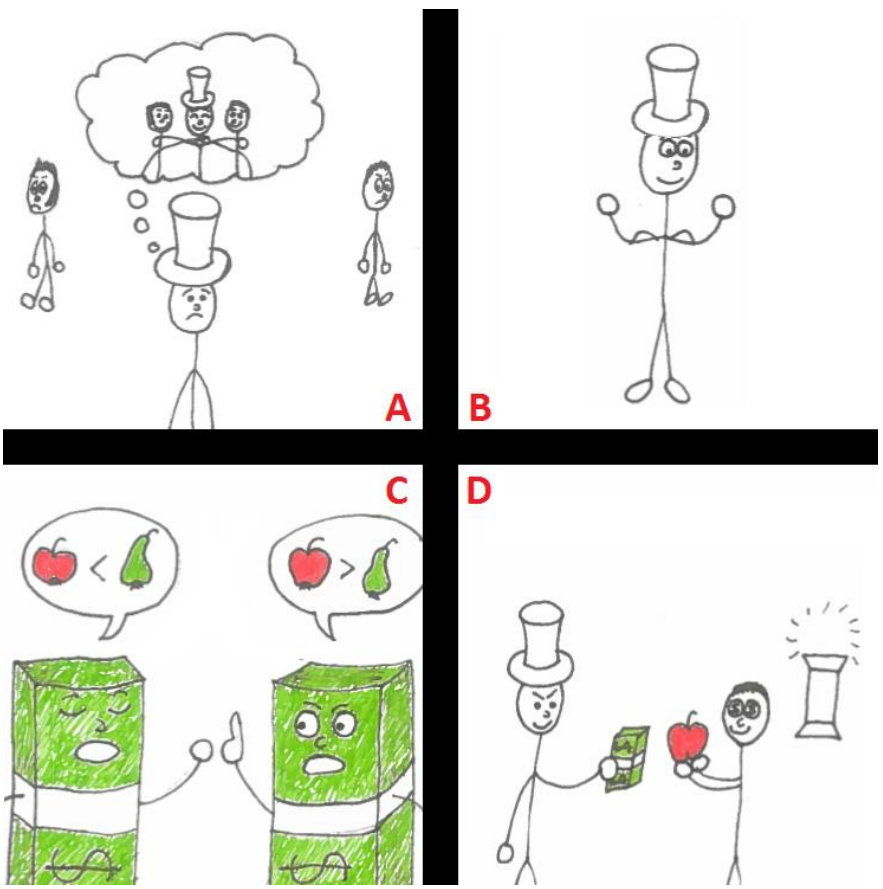


Pull a long face

When Jim sees Tim he can tell something is wrong. "Why are you pulling that long face?" Jim asks.

- A
- B
- C
- D

Choose the picture that shows the meaning of "money talks"

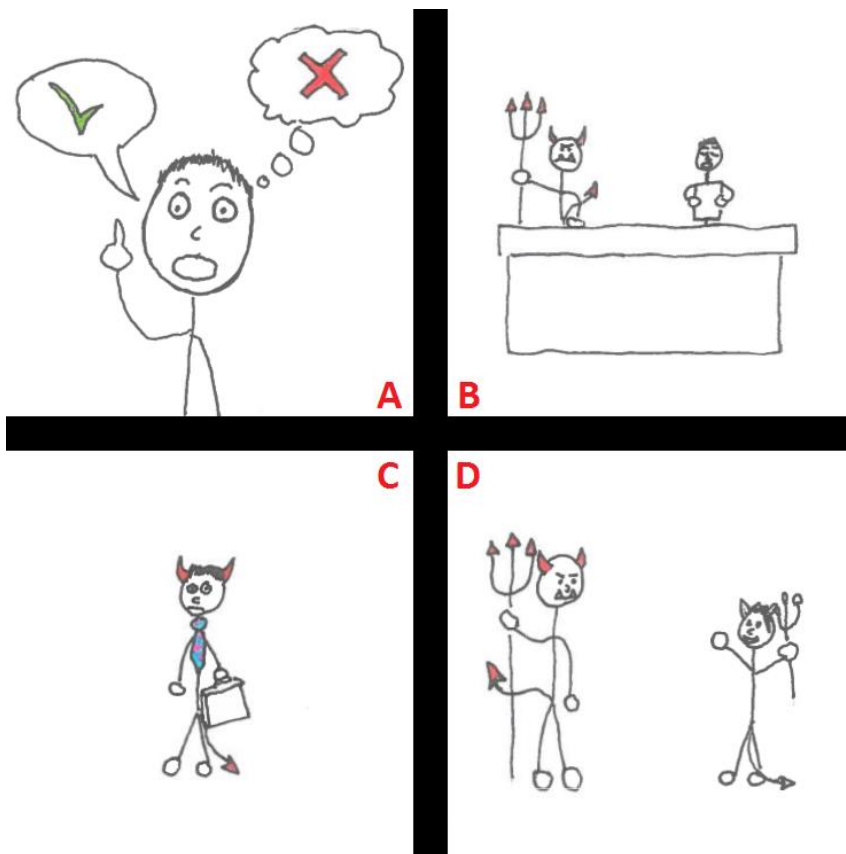


Money talks

The businessman often gets what he wants. That is because money talks.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to play devil's advocate"

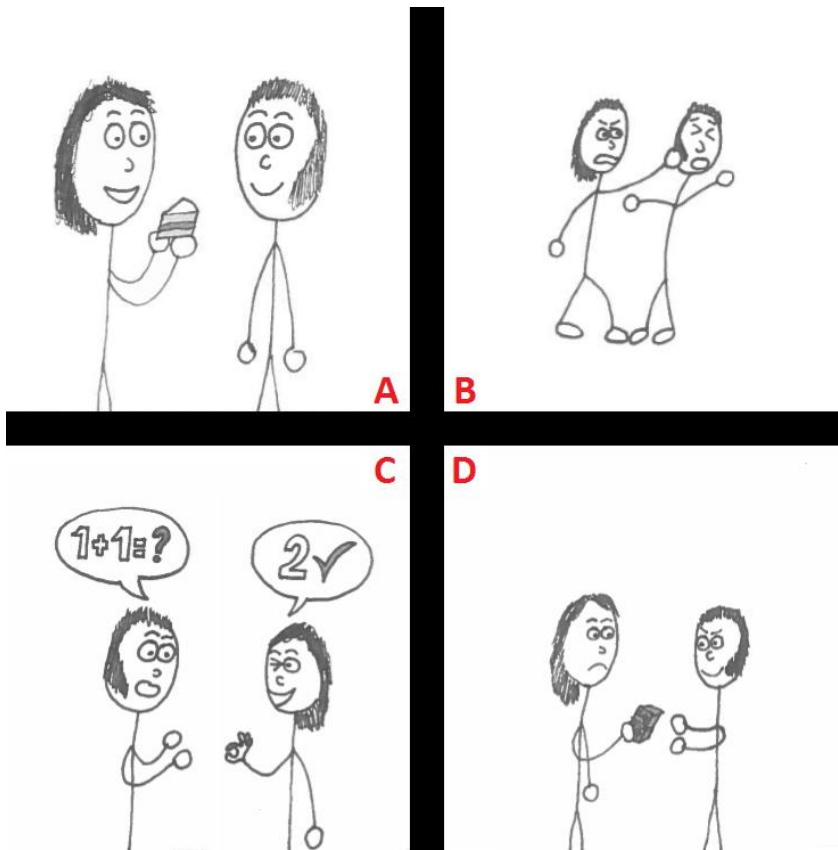


Devil's advocate

Tim wants to start a discussion. He plays devil's advocate.

- A
- B
- C
- D

Choose the picture that shows the meaning of "a piece of cake"



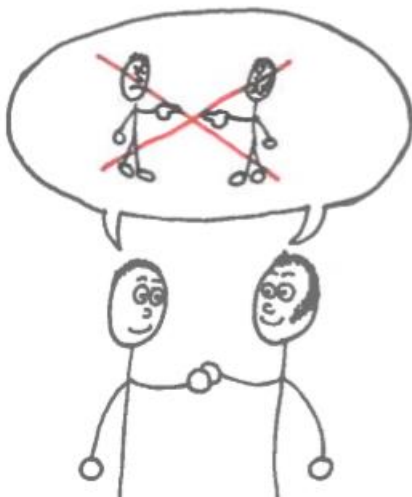
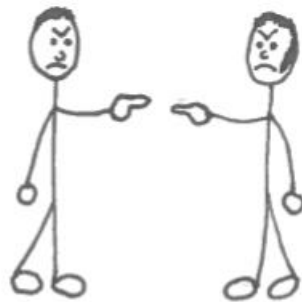
Piece of cake

Jim needs help, so he asks Sara. Sara thinks it's a piece of cake.

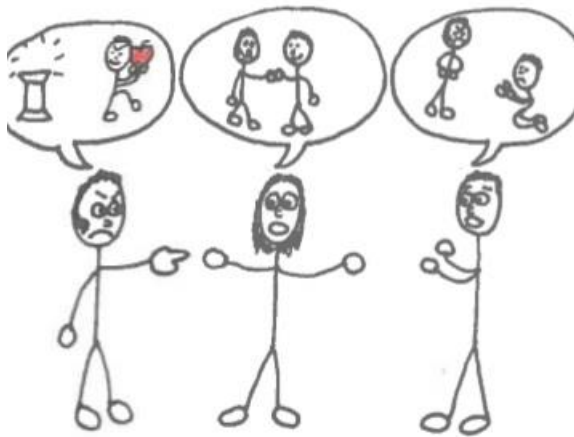
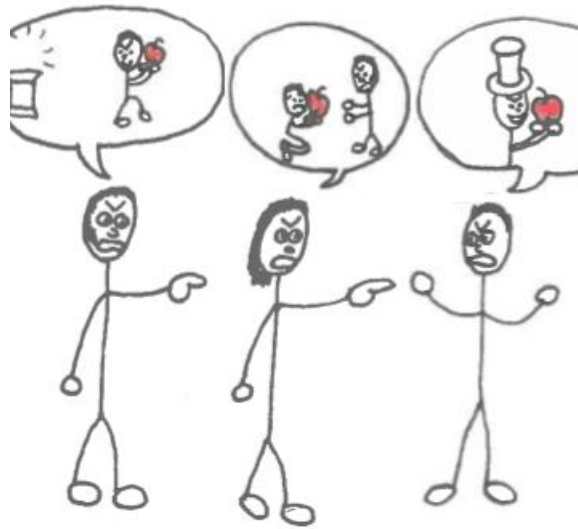
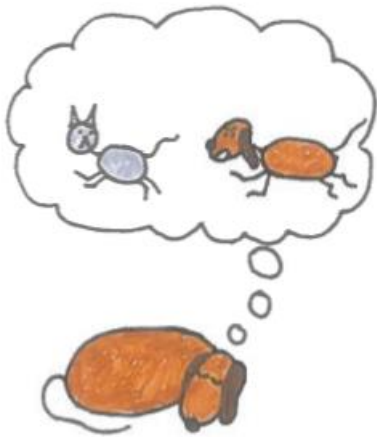
- A
- B
- C
- D

Appendix 5: Image idioms omitted due to high complexity images

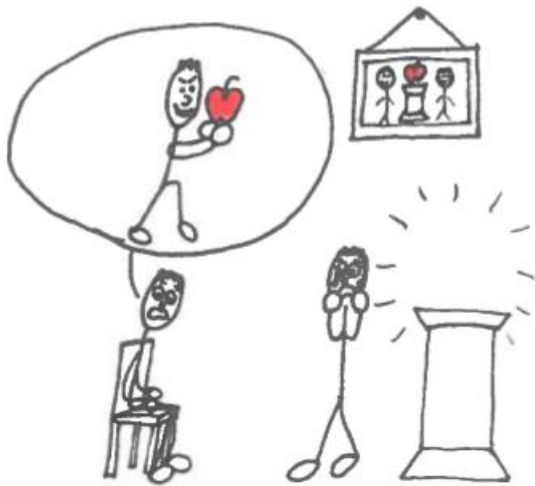
Bury the hatchet



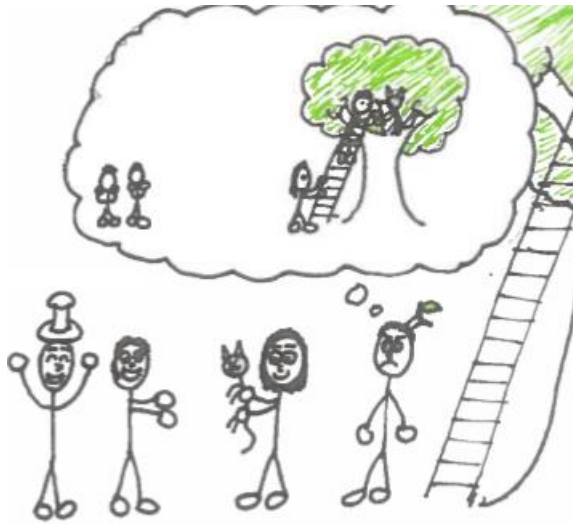
Let sleeping dogs lie



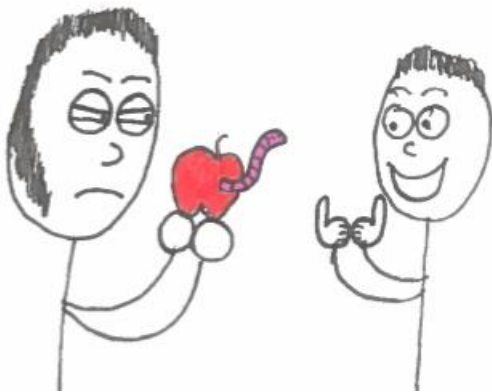
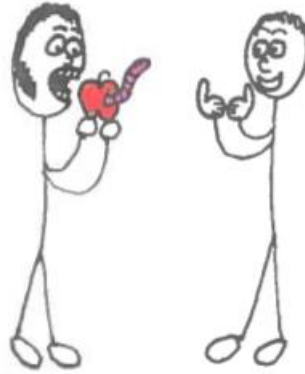
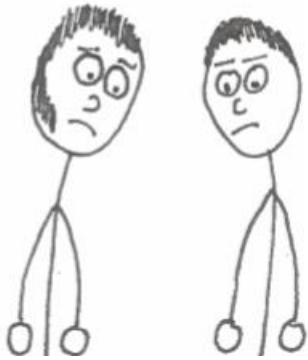
Let the cat out of the bag



Steal someone's thunder



Take something with a grain of salt



Appendix 6: Native speaker results

Idiom	Question type	Correct (%)	Distractor (%)	Mistake (%)	Exclude?
<i>To be a blessing in disguise</i>	<i>Written</i>	96	1	3	
<i>To roll up one's sleeves</i>	<i>Written</i>	96	3	1	
<i>The icing on the cake</i>	<i>Written</i>	95	1	4	
<i>More or less</i>	<i>Written</i>	91	9	0	
<i>To be game</i>	<i>Written</i>	92	1	7	
<i>To take charge</i>	<i>Written</i>	85	0	15	
<i>Rule of thumb</i>	<i>Written</i>	90	1	9	
<i>To put wool over people's eyes</i>	<i>Written</i>	99	1	0	
<i>To not be playing with a full deck</i>	<i>Written</i>	40	4	56	*
<i>To turn the tables</i>	<i>Written</i>	92	2	6	
<i>To cross someone's mind</i>	<i>Written</i>	59	38	3	*
<i>To cut to the chase</i>	<i>Written</i>	98	1	1	
<i>The ball is in your court</i>	<i>Written</i>	97	1	2	
<i>Back to the drawing board</i>	<i>Written</i>	96	1	3	
<i>Don't quit your day job</i>	<i>Written</i>	92	1	7	
<i>To add insult to injury</i>	<i>Written</i>	94	0	6	
<i>Actions speak louder than words</i>	<i>Written</i>	91	7	2	
<i>Penny for your thoughts</i>	<i>Written</i>	91	1	8	
<i>A hot potato</i>	<i>Written</i>	53	2	45	*
<i>Beat about the bush</i>	<i>Written</i>	95	1	4	
<i>Fit as a fiddle</i>	<i>Written</i>	97	1	2	
<i>To have it at one's fingertips</i>	<i>Written</i>	77	6	17	
<i>At the top of one's lungs</i>	<i>Written</i>	95	0	5	
<i>On a roll</i>	<i>Written</i>	97	1	2	
<i>To take advantage of</i>	<i>Written</i>	95	2	3	
<i>Blockbuster</i>	<i>Written</i>	69	0	31	*
<i>By the book</i>	<i>Written</i>	94	1	5	
<i>Slippery slope</i>	<i>Written</i>	93	1	6	
<i>Not my cup of tea</i>	<i>Written</i>	97	2	1	
<i>Sweet tooth</i>	<i>Written</i>	98	1	1	
<i>To flip someone the bird</i>	<i>Image</i>	92	5	3	
<i>To have a broken heart</i>	<i>Image</i>	84	16	0	
<i>To be caught red handed</i>	<i>Image</i>	94	5	1	
<i>To have cold feet</i>	<i>Image</i>	94	4	2	
<i>To cost an arm and a leg</i>	<i>Image</i>	88	3	9	
<i>To be a couch potato</i>	<i>Image</i>	97	3	0	
<i>To put all your eggs in one basket</i>	<i>Image</i>	55	11	34	*
<i>To feel a bit under the weather</i>	<i>Image</i>	98	1	1	
<i>To get bent out of shape</i>	<i>Image</i>	81	6	3	
<i>To hit the hay</i>	<i>Image</i>	98	1	1	
<i>To give someone a hand</i>	<i>Image</i>	98	1	1	
<i>To bite off more than you can chew</i>	<i>Image</i>	97	3	0	

<i>To kill two birds with one stone</i>	<i>Image</i>	81	5	14	
<i>To kick the bucket</i>	<i>Image</i>	77	7	16	
<i>It takes two to tango</i>	<i>Image</i>	49	31	20	*
<i>To be in the same boat</i>	<i>Image</i>	83	7	10	
<i>To hit the nail on the head</i>	<i>Image</i>	93	5	2	
<i>To tie the knot</i>	<i>Image</i>	93	1	6	
<i>It's raining cats and dogs</i>	<i>Image</i>	98	1	1	
<i>To see eye to eye</i>	<i>Image</i>	92	4	4	
<i>To speak of the devil</i>	<i>Image</i>	91	6	3	
<i>To sit on the fence</i>	<i>Image</i>	95	4	1	
<i>To sleep with the fishes</i>	<i>Image</i>	62	18	20	*
<i>To lose your head</i>	<i>Image</i>	94	3	3	
<i>To pull a long face</i>	<i>Image</i>	92	7	1	
<i>Money talks</i>	<i>Image</i>	80	2	18	
<i>To play devil's advocate</i>	<i>Image</i>	76	11	13	
<i>A piece of cake</i>	<i>Image</i>	96	2	2	
<i>To bark up the wrong tree</i>	<i>Image</i>	88	6	6	
<i>To have green fingers</i>	<i>Image</i>	89	0	11	

Appendix 7: Results of English Exposure-part of background form

English exposure									
Participant	Read texts	Write texts	Listen to	Show/Film	Subtitles	Cartoons	Games	(hours)	Television
101	4	3	5	4	4	2	3	2	3
103	5	4	5	5	2	1	1	0	1
104	4	3	5	4	4	1	1	0	2
105	5	3	5	5	3	5	1	0	3
106	5	4	5	4	2	4	1	0	2
107	3	2	3	3	4	2	3	0.3	2
109	5	5	5	5	2	5	1	0	2
110	5	2	4	4	3	2	1	0	2
111	5	5	5	5	3	5	1	0	2
112	5	2	5	5	2	1	1	0	3
113	4	3	5	5	4	2	1	0	3
114	5	5	5	4	2	1	3	1	1
115	4	2	4	3	3	2	1	0	2
117	4	2	4	3	2	2	1	0	2
118	4	3	5	3	2	2	1	0	2
119	5	3	5	5	2	2	5	3	1
120	5	4	5	5	2	4	2	0.25	2
121	5	2	4	4	4	2	2	1	2
122	3	2	3	5	4	2	4	1	4
123	5	3	5	5	2	4	2	0.5	2
124	4	4	4	5	2	2	4	2	2
125	3	2	2	3	3	2	2	1	3
126	5	5	5	5	3	3	3	1	2
127	5	4	4	4	2	2	2	0	2
128	4	3	3	4	4	2	1	0	3
129	5	4	5	5	2	2	5	2	2
Average:	4.46	3.23	4.42	4.31	2.77	2.46	2.04	0.58	2.19

201	4	3	5	3	4	2	2	0.5	2
202	5	4	5	4	2	2	1	0	2
203	5	4	5	5	3	5	4	1	2
204	5	4	5	5	2	2	2	0	3
205	5	4	5	4	4	3	3	2	3
206	5	5	5	5	3	2	1	0	3
207	5	5	5	4	2	2	4	1	2
208	5	4	4	3	2	2	1	0	1
209	5	3	5	4	2	2	4	1.5	1
210	5	4	5	5	2	2	4	1.5	2
211	5	5	4	5	3	3	3	5	4
212	4	5	4	4	3	4	1	0	3
213	5	4	5	4	3	2	1	0	2
214	5	5	5	5	3	2	3	1.5	2

215	5	5	5	5	2	3	2	0	1
216	5	4	5	4	4	2	2	0	2
217	5	4	5	5	3	2	3	1.5	3
218	5	5	5	5	2	2	4	2.5	2
219	5	4	5	4	4	4	3	2	2
220	5	4	5	4	3	2	3	1	3
221	5	5	4	4	4	1	1	0	3
222	5	4	5	5	3	3	2	0.25	2
223	5	5	5	4	4	2	5	2.5	2
224	5	4	5	4	3	2	4	2	2
225	5	4	5	4	3	4	1	0	2
226	5	5	4	5	3	4	1	0	2
Average:	4.92	4.31	4.81	4.35	2.92	2.54	2.50	0.99	2.23