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**Patekar, Jakob; Košuta, Nataša**

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# Original Research

## Croatian EFL learners' collocational competence: Congruent and incongruent collocations

by Jakob Patekar and Nataša Košuta

**Jakob Patekar** RIT Croatia, Croatia [jakob.patekar@outlook.com](mailto:jakob.patekar@outlook.com)

**Nataša Košuta** University of Rijeka, Croatia [nkosuta@ffri.uniri.hr](mailto:nkosuta@ffri.uniri.hr)

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*The paper describes Croatian EFL learners' collocational competence with regard to congruent and incongruent collocations. Congruent collocations are those which express the same meaning in both languages with similar lexical components, whereby a direct translation from L1 into L2 produces an appropriate collocation. On the other hand, incongruent collocations use different lexical components in the two languages to express the same meaning and a direct translation from L1 into L2 most likely produces an error. Based on this difference between the two types of collocations, the hypothesis is that participants would be more successful in producing congruent as opposed to incongruent collocations due to a positive crosslinguistic influence. To test the hypothesis, 175 Croatian high school students at different year levels (ages 15-18) were tested by using a 22-item task in which they were asked to translate collocations from L1 Croatian into L2 English. The results show that students were more successful in producing congruent than incongruent collocations, and their collocational competence grew with year level and the number of foreign languages spoken.*

**KEYWORDS:** congruent collocations, incongruent collocations, collocational competence, English as a foreign language, EFL, crosslinguistic influence



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### 1. INTRODUCTION

Collocations, as words that habitually go together, are an important part of language. Indeed, Nation (2001) goes so far as to equate collocational knowledge with language knowledge, stating in addition that '*all fluent and appropriate language use requires collocational knowledge*' (Nation, 2001, p. 523). Regarding the latter, James (1998, p. 152) claims that '*adherence to*

*the collocational conventions of an FL contributes greatly to one's idiomaticity*'. (The quotation actually continues on to mention 'nativelikeness' as a result of adhering to collocational conventions and 'foreignness' as a consequence of failing at producing correct collocations; however, seeing that in the academic community the native speaker is no longer considered the ideal towards which the foreign language learner should strive

(e.g., Cook, 1999), we understand that the goal of developing collocational competence is to become highly proficient in the foreign language, rather than to become native-like.) Hence, we can conclude that collocational competence needs to have a prominent place in foreign language learning and teaching, especially since lexical errors, of which collocational errors are a part, are considered as most severe in terms of error gravity (James, 1998) because they hinder effective communication. Ivir and Tanay (1975) recognised the particular challenge of learning collocations and pointed out that when acquiring the lexical fund of a foreign language, 'every student faces two types of challenges: one is to learn the meaning of individual lexical items, and the other is to learn how these items combine to form collocational bonds' (Ivir & Tanay, 1975, p. 29). It is no wonder that Borić (2004) believes that collocational competence 'should become an integral part of any form of teaching vocabulary of a foreign language' (p. 63). Similarly, based on her review of literature and current SLA research on collocations, Košuta (2012) concludes that developing collocational competence needs to be given a prominent place in foreign language classrooms and that a contrastive approach to studying and teaching collocations may help students understand and learn collocations better. The importance of the contrastive approach in analysing and teaching collocations is likewise emphasised by Čeh (2005) and Jurko (2010) in the L1 Slovenian and L2 English context.

While there are numerous studies of collocational competence in L2 English, research with L1 Croatian is surprisingly modest, and there are virtually no studies from the aspect of congruency, that is, studies looking at the difference between congruent and incongruent collocations in L1 Croatian and L2 English. However, from recent studies in the Croatian context (Brkić Bakarčić et al., 2022; Keglević Blažević, 2022; Patekar, 2022; Stojić & Košuta, 2021, 2022) that analysed, among other things, the underlying metaphors in metaphorical collocations in four languages (Croatian, German, English, and Italian), it emerges that in these languages there is, in certain cases, an overlap, or congruence, while in other cases, different metaphorical collocations are used to express the same meaning, which is an evidence of incongruence.

Nesselhauf (2003), to whose research we return at a later point, seems to have been among the first to revive the interest in studying collocations from the aspect of congruence, decades since Marton (1977) wrote

about lexically congruent and non-congruent syntagms. Congruent collocations are those which express the same meaning in both languages with similar if not identical lexical components, whereby a direct translation from L1 into L2 produces an appropriate collocation (e.g., *pokazati poštovanje* = *to show respect*). On the other hand, incongruent collocations use different lexical components in the two languages to express the same meaning, and a direct translation from L1 into L2 most likely produces an error (e.g., *ići na živce* ≠ *to go on one's nerves* = *to get on one's nerves*).

Seeing that research into other first and foreign languages (Nesselhauf, 2003; Wolter & Gyllstad, 2011, 2013; Wolter & Yamashita, 2015, 2018; Yamashita, 2018; Yamashita & Jiang, 2010) has shown that crosslinguistic influence and congruency play a significant role in learning and processing collocations, we were interested to see whether Croatian speakers of English would show the same pattern of struggling more with incongruent than congruent collocations and thus carried out this study. In the following part we explore the findings of studies on collocational competence of Croatian speakers of English and then look at the conclusions from international studies on the congruency effect in collocational competence.

## 2. THEORETICAL BACKGROUND

### 2.1. Collocational competence of Croatian speakers of English

As mentioned previously, there are no studies of collocational congruency with L1 Croatian and L2 English, but there are a few that examined Croatian speakers' collocational competence in English (e.g., Begagić, 2014; Koren & Rogulj, 2017; Miščin, 2015a; Miščin, 2015b; Miščin, 2016; Miščin, 2017; Pavičić Takač & Lukač, 2013; Pavičić Takač & Miščin, 2013). In most of these, the target language was English for specific purposes, primarily in medicine and business. In the following part we look at the key findings from these studies to gain an insight into the collocational competence of Croatian speakers of English.

Begagić (2014) tested 40 students of English in Zenica in their first and fourth years of university, describing them as native speakers of BSC (Bosnian/Serbian/Croatian). Their productive competence was tested via a translation task including 60 items and a receptive task including 72 items with lexical collocations. Based on the results, the author deems the students' overall collocational competence unsatisfactory and attributes this lack of competence to students' native language in-

fluence and to the way they were taught English. Nonetheless, Begagić (2014) found that fourth year students had performed significantly better than first year students and that the participants' receptive knowledge was much better than the productive.

Koren and Rogulj (2017) examined the collocational competence of 84 fifth- and sixth-year students of medicine using a multiple-choice and a two-way translation task. The authors also investigated the participants' perception of learning collocations. The collocations were extracted from teaching materials. The results show that participants rely on their L1 and approximation to produce collocations, and that their collocational competence was greater at the receptive than the productive level. The authors did not find a statistically significant difference between the collocational competence of fifth- and sixth-year students.

Miščin (2015a) analysed collocational exercises in English textbooks used in Croatian elementary and high schools and found that they are sporadic and predominantly target receptive collocational competence. In the same study, she tested the collocational competence of 80 elementary and high school students via a multiple-choice task, a gap-fill task, and a translation from English into Croatian and vice versa, with a total of 20 items (collocations). She found that students rely on their native language and thus produce erroneous collocations and that their competence grows with years of learning the language.

In another study, Miščin (2015b) examined the collocational competence of 40 first- and second-year students of business English by a multiple-choice and gap-fill test. The collocations were extracted from the business English corpus compiled by the author. Miščin (2015b) found the participants' collocational competence below average.

Miščin (2016) also tested 50 first-year and 60 sixth-year students of medicine as well as 20 first-year and 20 second-year students of management via multiple-choice and gap-fill tasks and found medical students performing better than management students, noting that sixth-year students of medicine had greater collocational competence than first-year students. This difference was not observed between the first- and second-year students of management. Miščin (2016) concludes that students rely on their first language and use approximation in producing collocations.

In a subsequent study, Miščin (2017) studied the collocational competence of 42 students of financial management using multiple choice and gap fill tasks

*'To summarise the findings of the collocational competence of Croatian learners of English, it is obvious that collocations present a challenge as researchers claim that the participants' level of collocational competence is low, and they identify L1 influence as one of the major causes of collocational errors'*

and found that L1 was not the source of errors in translation; rather, it was the students' lack of knowledge of financial terms in either language that contributed to poor results. Nonetheless, the receptive knowledge of collocations proved to be greater than the productive.

Pavičić Takač and Lukač (2013) analysed 298 essays written by Croatian learners of English as part of their state exam following high school specifically looking at adjective-noun collocations. The results showed that learners tended to overuse general adjectives (e.g., *big problem* as opposed to *major problem*) and that their choice was influenced by their L1 when there was a direct translation (e.g., *free time* in contrast to *spare time*). Regarding the latter, the authors find that congruent collocations '*facilitate transfer, however, they also limit NNS choice of collocation*' (Pavičić Takač & Lukač, 2013, p. 396).

Pavičić Takač and Miščin (2013) tested the collocational competence of 101 Croatian students of medicine (first-year and fifth-year) and 26 medical doctors. The test consisted of three types of tasks: multiple-choice, gap-fill, and translation (from English into Croatian and vice versa). The latter task in which the participants had to translate a collocation into English proved to be the most difficult. The results show that the participants' receptive knowledge was greater than productive, and that their overall competence increases with what the authors identify as years of exposure and active use. Nonetheless, the authors conclude that the participants' collocational competence is 'rather limited' (Pavičić Takač & Miščin, 2013, p. 247) and that errors stem from the participants' heavy reliance on the first language and their use of approximation as a strategy (using near-synonyms).

To summarise the findings of the collocational competence of Croatian learners of English, it is obvious that collocations present a challenge as researchers claim that the participants' level of collocational competence is low, and they identify L1 influence as one of

major causes of collocational errors. In some cases, researchers found that collocational competence increases with years of learning and exposure, but not always within one year. Finally, receptive knowledge of collocations has in a few cases shown to be greater than the productive.

## 2.2. Studies on the congruency effect in collocational competence

Although there are no studies on collocational congruency with L1 Croatian and L2 English, research by Štefić et al. (2010) does in fact examine the matter by looking at the collocations in the corpus of dental texts and differentiating between full, partial, and zero translation equivalents. The authors provide examples for full equivalents (*oral medicine = oralna medicina*), partial equivalents (*end organ = ciljni organ*), and zero equivalents (*scarlet fever = šarlah*). The authors conclude that partial equivalents present a challenge and that zero equivalents present a major problem in translating from English into Croatian.

At this point we shall refer to two studies conducted in the Croatian context, but with L2 German, as they specifically address the issue of collocational congruency and are the only such studies known and accessible to the authors of this paper. Stojić and Košuta (2017, 2020) found a strong L1 influence in the use of collocations in Croatian speakers of German when they analysed essays on the state exam following high school as well as essays of university students. They noted a negative L1 influence (one resulting in errors) in the use of incongruent collocations in L2 German, whereas congruent collocations did not prove to be problematic.

There are studies with other first languages and L2 English that we can also draw conclusions from. Nesselhauf (2003) analysed 32 essays by German university students of English in their third and fourth years, found a strong L1 influence that resulted in collocational errors, and concluded that *'non-congruent combinations were consistently far more difficult for the learner than the congruent ones'* (Nesselhauf, 2003, p. 236). Yamashita and Jiang (2010) investigated 20 speakers of English, 24 Japanese-speaking ESLs and 23 Japanese-speaking EFLs, all at university level or above, using a 58-item cloze test. They found, among other things, that the latter group *'took longer and made more errors when they responded to incongruent collocations'* (Yamashita & Jiang, 2010, p. 660). As for the speakers of English as a second language, they conclude that the *'long-lasting congruency effect on the ESL users' error*

*rate suggest that incongruent collocations are difficult to accept in the L2 mental lexicon and acquiring this type of collocation takes a long time, requiring a massive amount of exposure to the L2'* (Yamashita & Jiang, 2010, p. 660-661). Wolter and Gyllstad (2013) tested the collocational competence in L2 English of 25 Swedish-speaking university students and found that L1 has a considerable influence on the processing of L2 collocations, with incongruent collocations taking longer to process than the congruent. Peters's (2016) participants were 41 Dutch-speaking learners of English at university level and in her study, based on a test with 18 collocations (9 congruent and 9 incongruent), she found that congruency had an effect only when participants had to recall the collocation, and not when they had to recognise it. She believes that when incongruent collocations are semantically transparent (e.g., *to make an effort*) they do not pose a challenge at the level of perception, but they still do at the level of production. Finally, Wolter and Yamashita (2018) tested 47 Japanese-speaking learners of English at university level (intermediate/advanced) and found that incongruent collocations were processed more slowly than the congruent in both the intermediate and advanced groups.

To summarise the findings of studies on the congruency effect in collocational competence, research on native speakers of German, Japanese, Swedish, and Dutch has so far confirmed that incongruent collocations present a particular challenge to English language learners as they take longer to process and are more difficult to learn and use properly. In the following part of the paper, we turn to our research to examine the role of congruency in Croatian speakers' collocational competence in English.

## 3. MATERIAL AND METHODS

### 3.1. Research aim and questions

The aim of this research was to investigate the collocational competence of Croatian-speaking learners of English with a special emphasis on the difference between their ability to use congruent and incongruent collocations. In our research, we were guided by the following questions.

1. Is there a statistically significant difference between the average score on congruent collocations and the average score on incongruent collocations?
2. Is there a statistically significant difference in the collocational competence based on the participants' (a) programme, (b) gender, (c) years of learning English, and (d) number of foreign languages?



### 3.2. Participants

The participants were 175 high school students, native speakers of Croatian; 61 came from a vocational school in Zagreb and 114 from a comprehensive school (Cro. *gimnazija*) in Rijeka. There were more female (73.1%) than male (26.9%) participants in the study, and they were of different ages, but up to 18 years old (Figure 1).

Most fifteen-year-old participants had learned English for eight years (from grade 1 of elementary school), sixteen-year-olds for nine years, and eighteen-year-olds for eleven years, and the distribution of the years of learning for the whole sample is given in Figure 2.

Finally, as can be seen in Figure 3, most participants (59%) spoke another foreign language in addition to English, usually German or Italian.

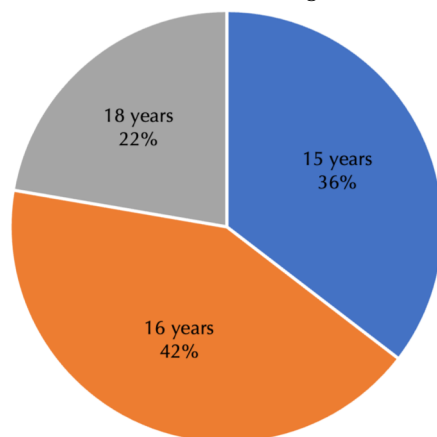


Figure 1. Participants' age distribution

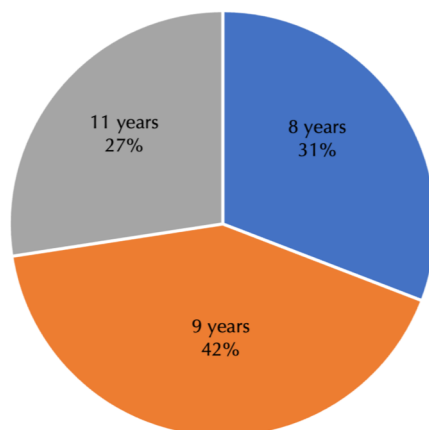


Figure 2. Distribution of years of learning English

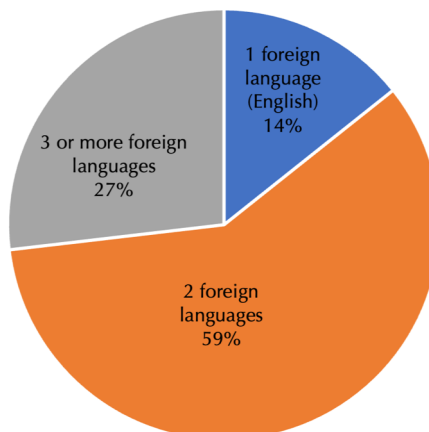


Figure 3. Number of foreign languages spoken among participants

### 3.3. Instrument

The instrument consisted of a task with 22 items – 11 sentences targeting congruent collocations and 11 sentences targeting incongruent collocations (Appendix A). The sentences were in English, with a blank that needed to be filled in by translating the collocation in Croatian given in parentheses below the blank. We opted for translation as a way to test the participants' collocational competence at the level of production rather than using a different task such as writing a text, which probably would not have given us all the target collocations due to the phenomenon of avoidance (Schachter, 1974), whereby learners avoid using vocabulary and grammar they find difficult). The order of the sentences was randomised. The task was preceded by questions aimed at collecting general participant data: gender, age, years of learning English, and knowledge of other foreign languages.

Out of eleven congruent collocations (Table 1), seven were selected from handbooks designed for intermediate learners (Dixson, 2004; McCarthy & O'Dell,

2017; Woolard, 2005), and four from the handbook intended for advanced learners (O'Dell & McCarthy, 2017).

In terms of incongruent collocations (Table 2), nine were selected from the handbook for intermediate learners and two from the handbook for advanced learners.

The rationale behind including two levels (intermediate and advanced) is that the First European Survey of Language Competences (European Commission, 2012) found that Croatian learners in grade 8 of elementary school (students around 14 years of age) can range from level pre-A1 to B2 in terms of their listening, reading, and writing skills, and we can imagine that a range of levels of proficiency would be found throughout high school as well.

All the collocations are considered lexical collocations of the L1 type in line with the classification suggested by Benson et al.'s (2010) combinatory dictionary of English. More exactly, they are all *verb + noun* collocations in both English and Croatian.

Table 1  
*Congruent collocations*

NO.	SOURCE CROATIAN COLLOCATION	TARGET ENGLISH COLLOCATION
1	<i>priuštiti si putovanje</i> (afford oneself trip)	to afford a trip
2	<i>pojavit se na sudu</i> (appear on court)	to appear in court
3	<i>prijaviti se za posao</i> (apply for job)	to apply for a job
4*	<i>susresti se s poteškoćama</i> (encounter with difficulties)	to encounter difficulties
5*	<i>pronaći rješenje</i> (find solution)	to find a solution
6*	<i>održati tiskovnu konferenciju</i> (hold press conference)	to hold a press conference
7	<i>objaviti članak</i> (publish article)	to publish an article
8	<i>podignuti glas</i> (raise voice)	to raise one's voice
9	<i>pokazati poštovanje</i> (show respect)	to show respect
10	<i>preskočiti obrok</i> (skip meal)	to skip a meal
11*	<i>predati izvještaj</i> (submit report)	to submit a report

\*Collocations from the handbook for advanced learners.

Table 2  
*Incongruent collocations*

NO.	SOURCE CROATIAN COLLOCATION	TARGET ENGLISH COLLOCATION
1**	<i>dodijeliti nagradu</i> (assign/allot/allocate/award prize)	to award a prize
2	<i>napisati zadaću</i> (write homework)	to do homework
3**	<i>pronaći sreću</i> (find happiness/felicity/luck/ fortune)	to find happiness
4	<i>ići na živce</i> (go on nerves)	to get on one's nerves
5**	<i>izdati priopćenje</i> (publish/issue/bring out announcement)	to issue a statement
6**	<i>pripaziti na trgovinu</i> (attend to/see to/look after/take care of store)	to mind the store
7**	<i>predstavljati prijetnju</i> (represent/constitute/pose threat)	to pose a threat
8	<i>donijeti presudu</i> (bring verdict)	to reach a verdict
9**	<i>objaviti album</i> (publish/announce/issue/release album)	to release an album
10	<i>imati šanse</i> (have chance)	to stand a chance
11**	<i>osnovati obitelj</i> (found/establish/set up/start family)	to start a family

\*\* We found these collocations incongruent because a learner needs to select an appropriate synonym from a number of them in order for the direct translation to be successful and result in an appropriate collocation. English translations of the source Croatian lexemes are based on Bujas (2011).

### 3.4. Procedure

The survey was distributed in February 2020 in two high schools – a comprehensive school in Rijeka and a vocational school in Zagreb. The participants filled out the survey during their regular English class. The data was analysed in March 2020 using SPSS 25.

## 4. RESULTS AND DISCUSSION

Each of the 22 items was scored on a scale from 1 to 4, with 1 meaning 'empty or incomplete', 2 – 'incorrect', 3 – 'correct, but not in the target form', and 4 – 'correct in the target form'. To elaborate on the score of 3, this meant that the participant did indeed produce another collocation used in English or found another way to express the meaning. The acceptability of the participants' answers was checked in the Corpus of Contemporary American English and British National Corpus as the most recent sources of information on collocations/collocability. Minor spelling mistakes were

disregarded, as well as the mistakes in the use of articles or tense. Some answers were categorised as incorrect even though they are grammatically correct and confirmed in the corpus because we found they did not quite capture the meaning of the original collocation in English, for example, the participants' use of *have a family*, *raise a family*, or *settle down* for *osnovati obitelj*.

At the beginning of the analysis, we shall look at the average scores for congruent and incongruent collocations (Figure 4).

In the group of congruent collocations (from *to afford a trip* to *to submit a report*), we see that participants scored below 3 on collocations *to publish an article*, *to hold a press conference*, *to appear in court*, *to encounter difficulties*, and *to submit a report* (in score descending order).

In the group of incongruent collocations (from *to award a prize* to *to start a family*), participants scored above 3 only in two cases, *to find happiness* and *to*



*start a family*, so clearly, in contrast to scores on congruent collocations, the participants did not do so well. The participants' lowest scores were for the collocations *to submit a report*, *to issue a statement*, and *to reach a verdict*.

Clearly, in both groups of collocations there are those that prove more difficult than others, which means that congruent collocations can also pose a challenge. What the collocations with the lowest scores

have in common is that most of them belong, if we may put it like that, to the world of adults and administration – appearing in court, publishing an article, submitting a report, issuing a statement, etc. However, this could only be one of the factors as there are other collocations that the participants did not do so well on and that in fact belong to the world of teenagers (doing homework, releasing an album, getting on one's nerves, etc.). Furthermore, it should be noted that all the collocations

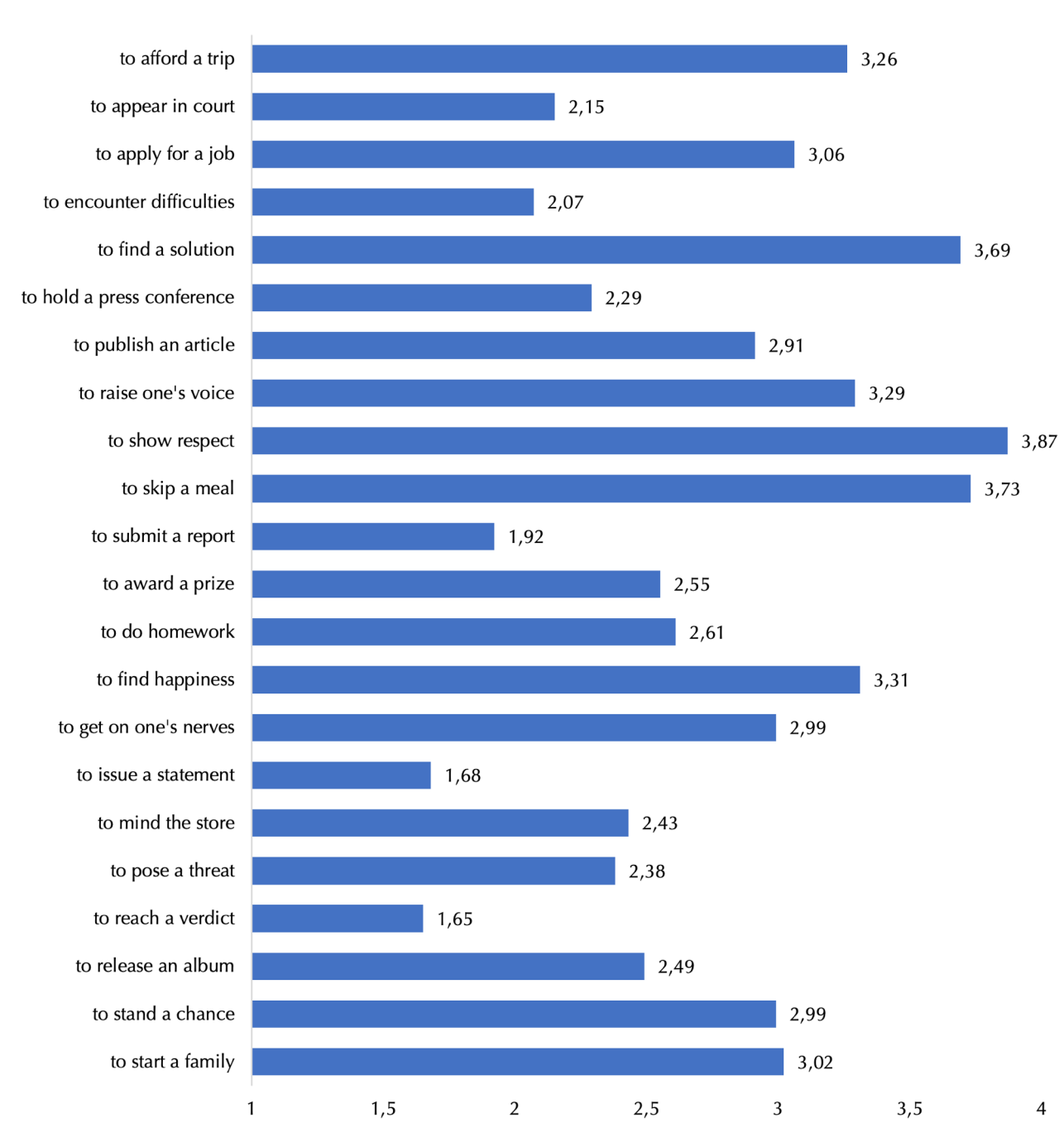


Figure 4. Average score per target collocation (congruent and incongruent)

*'Clearly, in both groups of collocations there are those that prove more difficult than others, which means that congruent collocations can also pose a challenge. What the collocations with the lowest scores have in common is that most of them belong, if we may put it like that, to the world of adults and administration...'*

in the test were extracted from handbooks for English language learners at appropriate levels; thus, it could be presumed that the participants should have been generally familiar with such collocations.

Appendix B provides a detailed overview of the participants' answers for all the collocations, giving first the target form and then the acceptable answer (correct, but not target form), and finally the incorrect answer. It also contains the number of occurrences of correct, target answers and an indication of the most common correct, but not target answers as well as incorrect answers. Here, we shall mention several examples of collocational errors, and these will help us gain an insight into different strategies that learners seem to be using in an attempt to provide a correct answer.

One of the obstacles to using the correct collocation is the well-known problem of Croatian speakers of English, and that is the misuse of prepositions, which occurs as a result of crosslinguistic influence and is one of the most common errors found in learners' written output (Patekar, 2017). For example, instead of producing the appropriate collocation form *appear in court*, the participants wrote *appear at court* and *appear on court*, or *show up to court*, etc. Prepositions were also a challenge with the item *mind the store*, where the participants wrote *look for the shop*, *look out the store*, *look up for shop*, *watch for the store*, *watch on the market*, *watch out for the shop*, *watch over the shop*, etc. in their attempt to convey the same meaning as *pripaziti na trgovinu*. As a side note, this is the only collocation that no participant produced in the target form – the answer, when correct, was mostly *watch the store/shop*.

Next, the participants often reach for a synonym to form the collocation, but the synonym does not simply collocate with the base or collocator to convey the target meaning. This is best illustrated by the participants' attempts to say *osnovati obitelj* in English, *build a family*, *create a family*, *ensemble a family*, *form a*

*family*, *found a family*, *make a family*, etc., where the issue was with the verb; an example with the challenging noun is the collocation *afford a trip*, for which the participants wrote *afford a vacation*, *afford the journey*, *afford travel*, etc.

Furthermore, the participants in certain cases attempt to express the same meaning of the Croatian collocation by using a word as closest to its meaning as possible, which is exemplified by the participants' answers to the congruent collocation *podignuti glas*: *be loud*, *scream*, *shout*, *speak loudly*, *speak up*, *talk back*, *yell*, etc.

Similarly, the participants sometimes use associations in their attempt to convey the target meaning, which is evident in trying to say *ići na živce* in English in quite innovative ways: *freak me out*, *make me crazy*, *piss me off*, *push my buttons*, *stress me*, etc.

At times, the participants use a word or structure that is simpler or more frequent than the target collocation, such as the correct *hand in a report* or *turn in a report* instead of the specific and target *submit a report*, or the incorrect *give a report* (which has a different meaning). Another example is the participants' quite common use of *give an award* instead of *award a prize*.

Finally, we found interesting examples such as *sign up for a job* instead of *apply for the job* and *post an article* instead of *publish an article*; it seems that the words *sign up* for *prijaviti* and *post* for *objaviti* are more present in teenagers' vocabulary due to their intensive use of computers and mobile devices and the internet: one *signs up* for an account and *posts* something on social media. Speaking of teenagers' vocabulary, the authors were intrigued to find out that *to drop an album* is in fact a slang expression for *to release an album* and accepted the answer as correct.

As can be seen from this brief analysis, participants use a range of strategies in an effort to produce a correct collocation.

To find an answer to the first research question – whether there is a statistically significant difference between the average score on congruent collocations and the average score on incongruent collocations – we first calculated the average scores for participants' responses to 11 congruent and 11 incongruent collocations. We then carried out a paired samples t-test. As can be seen in Table 3, the participants scored higher on congruent ( $M = 2,9309$ ) than incongruent ( $M = 2,5534$ ) collocations. Table 4 shows that there is a significant average difference between the scores on congruent and incongruent collocations ( $t = 12,813$ ,  $p < 0.001$ ).

Table 3  
*Mean results of congruent and incongruent collocations*

	MEAN	N	SD
Congruent collocation average	<b>2,9309</b>	175	,61618
Incongruent collocation average	<b>2,5534</b>	175	,53046

Table 4  
*Statistically significant difference between the mean results*

	MEAN	SD	SEM	T	DF	SIG. (2-TAILED)
Congruent collocation average – Incongruent collocation average	,37754	,38980	,02947	12,813	174	<b>,000</b>

This finding confirmed our hypothesis that incongruent collocations pose a greater challenge than congruent collocations for Croatian learners of English. This has previously been found with L1 Croatian and L2 English by Štefić et al. (2010) who talk about full, partial, and zero equivalents, with the latter two being identified as problematic from the perspective of translation. The results of a study on L1 Croatian and L2 German (Stojić & Košuta, 2017, 2020) point to the same conclusion. As described in the theoretical part of the paper, research on other first languages (Nesselhauf, 2003; Peters, 2016; Wolter & Gyllstad, 2013; Wolter & Yamashita, 2018; Yamashita & Jiang, 2010) clearly shows that congruent collocations are processed faster and are easier to learn and use properly in contrast to incongruent collocations.

Our second research question was aimed at finding out whether there is a statistically significant difference

in collocational competence depending on four variables: programme, gender, years of learning English, and number of foreign languages. We first calculated the average score on all 22 collocations, which represents the level of the participants' collocational competence (ranging from 1 to 4).

Following that, we carried out Levene's test for the homogeneity of variances and a t-test for the three average scores (total average, congruent collocation average, and incongruent collocation average) and the participants' programme.

Table 5 shows that there is a difference between the participants' programme regarding all three average scores, with comprehensive school students having a higher score than students from vocational school when it comes to congruent collocations, incongruent collocations, and the total average. As can be seen in Table 6, this difference is statistically significant ( $p < 0.001$ ).

Table 5  
*Mean results according to averages and programme*

AVERAGE	PROGRAMME	N	M	SD
Total average	Vocational school	61	<b>2,5120</b>	0,52148
	Comprehensive school	114	<b>2,8652</b>	0,51187
Congruent collocation average	Vocational school	61	<b>2,6902</b>	0,65132
	Comprehensive school	114	<b>3,0597</b>	0,55799
Incongruent collocation average	Vocational school	61	<b>2,3336</b>	0,47955
	Comprehensive school	114	<b>2,6710</b>	0,52072

Table 6  
Statistically significant difference between the means

		LEVENE'S TEST FOR EQUALITY OF VARIANCES		T-TEST FOR EQUALITY OF MEANS		
		F	Sig.	t	df	Sig, (2-tailed)
Total average	Equal variances assumed	0,051	0,821	-4,321	173	<b>0,000</b>
Congruent collocation average	Equal variances assumed	2,366	0,126	-3,935	173	<b>0,000</b>
Incongruent collocation average	Equal variances assumed	0,898	0,345	-4,196	173	<b>0,000</b>

We believe that this finding can be explained by the profile of learners who enrol in the two types of high schools. Seeing that the admission criteria for comprehensive schools are higher than for vocational schools, we presume that the participants from the comprehensive school are academically stronger than their peers in the vocational school, in many if not all subjects, including English. Nizonkiza's (2011) study showed that there is 'a predictive relationship between lexical competence, collocational competence, and L2 proficiency' (p. 137), which means that it can be expected that those who are generally better at English will also have a greater collocational competence.

In the next step of quantitative analysis, Levene's test for the homogeneity of variances and t-test for the

average scores and the participants' gender were carried out. There is a slight difference in average scores in favour of female participants, but this difference is not significant (Table 8).

This is an interesting and unexpected finding as female learners tend to do be more proficient than male learners, as research in the Croatian context with L2 English has shown (Patekar, 2017; Zergollern-Miletić, 2007). Surprisingly, none of the studies mentioned in the theoretical part, dealing with the Croatian speakers' collocational competence in L2 English, examined the effect of gender.

Hence, our finding should be explored in further studies to confirm whether collocational competence is resistant to the effect of gender.

Table 7  
Mean results according to averages and gender

AVERAGE	GENDER	N	M	SD
Total average	Female	128	<b>2,7569</b>	0,54710
	Male	47	<b>2,7017</b>	0,52677
Congruent collocation average	Female	128	<b>2,9539</b>	0,63972
	Male	47	<b>2,8683</b>	0,54849
Incongruent collocation average	Female	128	<b>2,5598</b>	0,50942
	Male	47	<b>2,5360</b>	0,58947

Table 8  
*Statistically significant difference between mean results*

		LEVENE'S TEST FOR EQUALITY OF VARIANCES		T-TEST FOR EQUALITY OF MEANS		
		F	Sig.	t	df	Sig. (2-tailed)
Total average	Equal variances assumed	0,017	0,896	0,597	173	<b>0,551</b>
Congruent collocation average	Equal variances assumed	1,087	0,299	0,814	173	<b>0,417</b>
Incongruent collocation average	Equal variances assumed	2,547	0,112	0,262	173	<b>0,793</b>

To find out whether the number of years of learning English made a difference in the participants' collocational competence, we carried out Levene's test and, depending on the homogeneity of variances, Welch's test and one-way ANOVA, followed by Games-Howell and Scheffe post-hoc tests. The means in Table 9 show a clear trend in the rise of scores with the years of learning English. The differences in scores based on

years of learning English are statistically significant ( $p < 0.05$ ) between all three groups (8 years, 9 years, 11 years) when it comes to the total average and congruent collocations.

However, for incongruent collocations, the difference is only statistically significant between those who had learned English for eight years and those who had learned it for eleven years (Table 10).

Table 9  
*Mean results according to years of learning English and averages*

	Years of learning English	N	M	SD
Total average	8 years	54	<b>2,4781</b>	0,53887
	9 years	73	<b>2,7400</b>	0,53279
	11 years	48	<b>3,0421</b>	0,38512
Congruent collocation average	8 years	54	<b>2,5959</b>	0,63486
	9 years	73	<b>2,9127</b>	0,56718
	11 years	48	<b>3,3354</b>	0,40219
Incongruent collocation average	8 years	54	<b>2,3604</b>	0,50069
	9 years	73	<b>2,5682</b>	0,55621
	11 years	48	<b>2,7479</b>	0,45090

Table 10  
*Statistically significant difference between mean results*

				MEAN DIFFERENCE (I-J)	SIG.
Total average	Games-Howell	8 years	9 years	-,26185	<b>0,020</b>
			11 years	-,56394	<b>0,000</b>
		9 years	8 years	,26185	<b>0,020</b>
			11 years	-,30208	<b>0,001</b>
		11 years	8 years	,56394	<b>0,000</b>
			9 years	,30208	<b>0,001</b>
Congruent collocation average	Games-Howell	8 years	9 years	-,31681	<b>0,012</b>
			11 years	-,73949	<b>0,000</b>
		9 years	8 years	,31681	<b>0,012</b>
			11 years	-,42268	<b>0,000</b>
		11 years	8 years	,73949	<b>0,000</b>
			9 years	,42268	<b>0,000</b>
Incongruent collocation average	Scheffe	8 years	9 years	-0,20785	0,081
			11 years	-,38755	<b>0,001</b>
		9 years	8 years	0,20785	0,081
			11 years	-0,17970	0,171
		11 years	8 years	,38755	<b>0,001</b>
			9 years	0,17970	0,171

This finding is in line with previous studies that found the effect of years of learning on learners' collocational competence (Begagić, 2014; Miščin, 2015a; Miščin, 2016; Pavičić Takač & Miščin, 2013). It is interesting to note that for incongruent collocations it seems to take longer for collocational competence to develop, as the difference is statistically significant only between those learning English for eight and those learning English for eleven years, which is not the case with congruent collocations the knowledge of which seems to grow in a shorter period (one or two years).

The same statistical procedure as above was carried out for the variable of the number of foreign languages. The mean results in Table 11 show that the average score increases with the number of foreign languages a participant knows. However, this difference in scores is not statistically significant between all groups,

but only some of them, as evident from Table 12. In terms of the total average, the difference is statistically significant ( $p < 0.05$ ) between those who speak only English and those who speak three or more foreign languages; the case is the same for the difference between those who know two foreign languages and those who know three or more.

For the average score on congruent collocations, the difference is statistically significant ( $p < 0.05$ ) only between those who speak two foreign languages and those who speak three or more.

Finally, when it comes to incongruent collocations, the difference is statistically significant ( $p < 0.05$ ) between those who speak only English and those who speak three or more foreign languages, as is the case with the difference between those who know two foreign languages and those who know three or more.



Table 11  
 Mean results according to averages and the number of foreign languages

	NUMBER OF FLs	N	M	SD
Total average	1 FL (English)	25	<b>2,5468</b>	0,54235
	2 FLs	103	<b>2,6939</b>	0,53244
	3 or more FLs	47	<b>2,9515</b>	0,50331
Congruent collocation average	1 FL (English)	25	<b>2,6568</b>	0,55507
	2 FLs	103	<b>2,9041</b>	0,62128
	3 or more FLs	47	<b>3,1355</b>	0,57819
Incongruent collocation average	1 FL (English)	25	<b>2,4364</b>	0,59370
	2 FLs	103	<b>2,4840</b>	0,50778
	3 or more FLs	47	<b>2,7677</b>	0,49356

Table 12  
 Statistically significant difference between mean results

				MEAN DIFFERENCE (I-J)	SIG.
Total average	Scheffe	1 FL (English)	2 FLs	-0,14708	0,457
			3 or more FLs	-,40469	<b>0,009</b>
		2 FLs	1 FL (English)	0,14708	0,457
			3 or more FLs	-,25761	<b>0,023</b>
		3 or more FLs	2 FLs	,40469	<b>0,009</b>
			1 FL (English)	,25761	<b>0,023</b>
Congruent collocation average	Scheffe	1 FL (English)	2 FLs	-0,24728	0,185
			3 or more FLs	-,47873	<b>0,007</b>
		2 FLs	1 FL (English)	0,24728	0,185
			3 or more FLs	-0,23145	0,094
		3 or more FLs	2 FLs	,47873	<b>0,007</b>
			1 FL (English)	0,23145	0,094
Incongruent collocation average	Scheffe	1 FL (English)	2 FLs	-0,04758	0,918
			3 or more FLs	-,33126	<b>0,037</b>
		2 FLs	1 FL (English)	0,04758	0,918
			3 or more FLs	-,28368	<b>0,009</b>
		3 or more FLs	2 FLs	,33126	<b>0,037</b>
			1 FL (English)	,28368	<b>0,009</b>

This finding is in line with previous research that points to the benefits of knowing more foreign languages. It appears that learning a foreign language helps learners develop metalinguistic awareness, which in turn enables them to learn a subsequent foreign language more easily as they are able to activate previous knowledge, look for crosslinguistic similarities, use strategies, etc. (Jessner, 2006). This finding was confirmed in the Croatian context with L2 English and L3 German and Italian (Patekar, 2017; Zergollern-Miletić, 2007).

To sum up, statistical analysis has provided us with answers to our two research questions. The participants achieved a better score on congruent than incongruent collocations, and the difference is statistically significant ( $p < 0.001$ ). This has confirmed our hypothesis that learners will find it challenging to produce collocations that they cannot translate directly and easily from the first language, Croatian. As for the other research question for which we turned to inferential statistics, the analysis has shown that the programme, the years of learning English, and the number of foreign languages play a role in learners' collocational competence, whereas gender does not.

## 5. CONCLUSION

Collocational competence is at the intersection of grammar and vocabulary (Stojić, 2012). This is why researching collocational competence – and learning collocations – is a true challenge.

In our study we tested Croatian high school students' collocational competence with a special emphasis on the difference between congruent and incongruent collocations. Our study does have limitations. For instance, the size of certain groups in the sample could be larger or more balanced. Furthermore, the participants' collocational competence was tested on 11 congruent and 11 incongruent collocations, altogether 22 items; this might be considered a small number of collocations, but other studies used a similar number of items to test collocational competence (e.g., Miščin, 2015a; Peters, 2016). In any case, further research should be based on a larger number of congruent and incongruent collocations. In addition, further studies might provide an answer as to the actual ratio of congruent to incongruent collocations. Another limitation is that the participants' competence at the productive level was tested by a translation task. The fact that the participants saw the collocation written in Croatian might have strongly influenced their answer. The use of

collocations might have been different if it had been a different task, such as writing a text; however, we did not opt for such a task due to the phenomenon of avoidance (Schachter, 1974) and our apprehension that we may not get sufficient data in that way. Nonetheless, it might be a good idea to test productive collocational competence by several different tasks in addition to translation. Finally, the focus of the study was on the congruent/incongruent parameter, while other factors such as frequency, idiomaticity, specificity/generality, and context of use were not considered. Thus, it would be valuable to analyse the results of the study from those aspects as well. Despite these limitations, we find the results and conclusions of our research valid.

Regarding the first research question, whether there is a statistically significant difference between the average score on congruent collocations and the average score on incongruent collocations, we found that there is a statistically significant ( $p < 0.001$ ) difference between the scores on congruent and incongruent collocations, with the participants scoring higher on congruent ( $M = 2,9309$ ) than incongruent ( $M = 2,5534$ ) collocations. With regard to the second research question, whether there is a statistically significant difference in the collocational competence based on the participants' programme, gender, years of learning English, and number of foreign languages, we found the following. There is a statistically significant difference ( $p < 0.001$ ) between comprehensive school students and vocational school students in favour of the former. In view of gender, there is no statistically significant difference. When it comes to the difference in the years of learning English, there is a statistically significant ( $p < 0.05$ ) difference between the three groups (8 years, 9 years, 11 years). Likewise, there is a statistically significant ( $p < 0.05$ ) difference between those who speak only English and those who speak three or more foreign languages, as well as those who know two foreign languages and those who know three or more.

High school students make collocational errors regardless of whether they are congruent or incongruent, but they make more mistakes with the latter type of collocations, and this difference is statistically significant. In their effort to produce the right collocations, learners use a variety of strategies, which merit a separate study. Some learners believe that a collocation in English can be expressed using the same lexical components as in Croatian and thus use direct translation to produce the target collocation. In the case of congruent collocations, L1 influence is in fact positive, but in the case of

incongruent collocations, the approach results in errors. Some mistakes do not necessarily result from L1 influence, but from the lack of knowledge of the L2, whether of the expression as a whole (e.g., *to mind the store, to get on one's nerves*) or of the collocational range of an otherwise familiar word. It appears that learning incongruent collocations takes longer, which was confirmed in previous research and in our study as well because the results show that those with more years of learning English score better than those with fewer, but only when this difference is longer than a year. The number of spoken languages also plays a role in collocational competence, which was previously confirmed for language proficiency. In our research gender did not have an effect on collocation competence, but this needs to be investigated further on a larger and more balanced sample.

Our findings have several implications. As previously stated, this study has opened a number of avenues requiring further research when it comes to incongruent collocations, collocational competence, and strategies learners use when producing collocations. While collocations are an interesting linguistic phenomenon in and of themselves, they are of particular interest to applied linguistics – learners with a high lev-

el of collocational competence are able to express themselves more clearly, concisely, and correctly. Yet, we know that many studies in the Croatian context have found learners' collocational competence to be low or below average (e.g., Miščin, 2015a; Miščin, 2015b; Miščin, 2017; Pavičić Takač & Miščin, 2013). It seems collocations are not given sufficient attention in class, especially when it comes to their use. In her study, Miščin (2015a) found that elementary and high school textbooks lack exercises that target collocations, especially at the productive level. Due to a demanding curriculum and a lack of time, English language teachers rely heavily on textbooks, which may be the reason collocations are rarely explicitly or sufficiently taught in Croatian schools. Therefore, materials developers and teachers should provide EFL learners with more collocation exercises, targeting in particular the use of incongruent collocations. This does not mean that collocations should be taught in isolation; on the contrary, students should be made aware of the contexts, genres, or styles in which particular collocations are used. In order for materials developers and teachers to do all of this, further research is needed with L1 Croatian and L2 English that would result in an inventory of frequent incongruent collocations at different levels of study.

## Appendix A

Test on collocations

Gender: female/male

Age: \_\_\_\_\_

Number of years spent learning English: \_\_\_\_\_

Other languages you speak (apart from Croatian): \_\_\_\_\_

Complete the following sentences. Below each line there is a phrase in Croatian that you need to translate into English. Don't leave anything blank – do your best to provide an answer.

There are 22 sentences. The first sentence is completed for you as an example.

- 0) They had to evacuate the building.  
(*evakuirati zgradu*)
- 1) She should \_\_\_\_\_ to her boss.  
(*pokazati poštovanje*)
- 2) He \_\_\_\_\_ in a prestigious journal.  
(*objavio članak*)
- 3) Scientists are trying to \_\_\_\_\_.  
(*naći rješenje*)

- 4) If you \_\_\_\_\_ now and then, it won't hurt you.  
(preskočiš obrok)
- 5) The minister \_\_\_\_\_.  
(održao tiskovnu konferenciju)
- 6) He \_\_\_\_\_ against the other candidate.  
(nema šanse)
- 7) Don't \_\_\_\_\_!  
(podiži glas)
- 8) I will \_\_\_\_\_ you told me about.  
(prijaviti se za posao)
- 9) We don't expect to \_\_\_\_\_.  
(susresti se s poteškoćama)
- 10) I guess it's time to \_\_\_\_\_.  
(osnovati obitelj)
- 11) You should \_\_\_\_\_ first and then you can play outside.  
(napisati zadaću)
- 12) \_\_\_\_\_ in what you do.  
(nađi sreću)
- 13) The new virus \_\_\_\_\_ to humanity.  
(predstavlja prijetnju)
- 14) The government \_\_\_\_\_ in which it denies all allegations.  
(izdala priopćenje)
- 15) Slow drivers \_\_\_\_\_.  
(idu mi na živce)
- 16) They haven't \_\_\_\_\_ yet.  
(donijeli presudu)
- 17) They failed to \_\_\_\_\_.  
(pojavit se na sudu)
- 18) I can't \_\_\_\_\_ to the seaside this year.  
(priuštiti si putovanje)
- 19) They \_\_\_\_\_ in time.  
(predali izvještaj)
- 20) She \_\_\_\_\_ last month and it's already on every top list.  
(izdala album)
- 21) They \_\_\_\_\_ to the best salesperson in the company.  
(dodijeli su nagradu)
- 22) Could you \_\_\_\_\_ for a minute? osnovati obitelj  
(pripaziti dućan)
- 23) They want to \_\_\_\_\_ .  
(osnovati obitelj)

## Appendix B

Correct, acceptable, and incorrect answers on the test

	CORRECT, TARGET ANSWER	CORRECT, ACCEPTABLE ANSWER	INCORRECT ANSWER***
1	afford a trip (113)**	afford to travel	*afford a vacation afford money to go afford the journey afford travel buy a trip pay for my trip pay myself a vacation spend on a trip
2	appear in court (9)	come to court come to the court show up at the court show up in court	appear at court appear before judge appear on court appear on trial *show on the court show themselves on court show up at the judgement show up in front of the judge show up on court show up to court show up judge hall
3	apply for the job (103)	–	applicate for job apply for the position candidate for the job go to a job interview log in for work put out the application for the job *sign up for the job sign up for work register for a job report myself for a job
4	encounter difficulties (5)	come across difficulties meet with difficulties run into difficulties	come across any inconveniences deal with any trouble encounter with difficulties face any obstacles face difficulties face the problems face with difficulties find any difficulties find it difficult find ourselves in problems get in trouble have a problem have any casualties have any trouble have trouble meet complications meet up with difficulties meet up with problems meet with any inconveniences meet with struggles surround with difficulties
5	find a solution (149)	–	find an answer resolve the issue

	CORRECT, TARGET ANSWER	CORRECT, ACCEPTABLE ANSWER	INCORRECT ANSWER***
6	held a press conference (63)	had a press conference	did a press conference had a media conference had the newspaper conference held a stamp conference hosted the press conference kept the conference minister conferention
7	published an article (101)	–	*posted an article published a column published a paragraph published news
8	raise your voice (119)	–	be loud higher your voice scream shout speak loudly *speak up talk back volume up your voice yell
9	show respect (166)	pay respect	–
10	skip a meal (155)	miss a meal	dismiss breakfast jump meal
11	submitted the report (21)	handed in the report turned in the report	brought the task delivered the report did the assignment filed the report *gave a report gave in the report gave the essay gave the report gave their research handed out the report handed over the report handed the report handed the report over have given the essay published the article sent in the report
12	awarded the prize (9)	handed the award have awarded the reward gave out an award *gave the prize presented the award	declared an award
13	do homework (53)	–	make homework *write homework
14	find happiness (116)	–	find fortune *find luck look for happiness search for luck



	CORRECT, TARGET ANSWER	CORRECT, ACCEPTABLE ANSWER	INCORRECT ANSWER***
15	get on my nerves (86)	–	annoy me are always annoying me are driving me crazy are irritating are on the top of my head freak me out get me on nerve go to my nerves make me angry make me crazy make me nervous nerve me piss me off push my buttons stress me
16	issued a statement (16)	put out a statement released a statement	filed a statement gave an announcement gave out a statement gave out a warning gave the explanation has come up with a statement has published a notice has submitted a statement made a response *made a statement published an account released a notification said news
17	mind the store (0)	keep an eye on the shop keep an eye on the store look after the store take care of my store take care of the shop watch after the store	check on shop check on store check the store have an eye on the shop look for the shop look out the store look up for shop pay attention on market take a look at the store take over mall take over the store watch for the store watch on the market watch out for store watch out for the shop watch out the shop watch over the shop watch the market
18	poses a threat (14)	*is a threat presents a threat represents a threat	is showing disaster is threatening sets threat symbolises a threat
19	reached a verdict (6)	–	brought judgement brought the verdict come to an agreement delivered judgement gave the final decision given the verdict

	CORRECT, TARGET ANSWER	CORRECT, ACCEPTABLE ANSWER	INCORRECT ANSWER***
			*made a decision *made a judgement made a verdict made the conviction passed the judgement prosecuted him reached judgement
20	released an album (52)	came out with an album dropped an album put out an album put out her album	dropped out album published an album put up an album recorded an album
21	doesn't stand a chance (36)	*doesn't have a chance has no chance	can't stand a chance hasn't got odds no way
22	start a family (97)	–	become a family build a family create a family ensemble a family form a family found a family grow our family *have a family make family raise a family set a family settle down

\* Marks a frequent occurrence.

\*\*The number in parentheses following the correct, target collocation refers to the number of participants who provided the answer.

\*\*\*Some answers were categorised as 'incorrect' even though they are grammatically correct and confirmed in the corpus because we found they did not quite capture the meaning of the original collocation in English. For example, the participants' use of *have a family*, *raise a family*, or *settle down* for *osnovati obitelj*. Another example is *face difficulties* which does not capture the meaning of *encounter difficulties* because we can encounter difficulties but not necessarily face them. Thus, we could not accept *face difficulties* because that would be changing the meaning of the utterance.

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JAKOB PATEKAR

RIT Croatia | 15 Damira Tomljanovića Gavrana, 10 000 Zagreb, Croatia  
[jakob.patekar@outlook.com](mailto:jakob.patekar@outlook.com)

NATAŠA KOŠUTA

University of Rijeka | 10 Trg braće Mažuranića, 51000 Rijeka, Croatia  
[nkosuta@ffri.uniri.hr](mailto:nkosuta@ffri.uniri.hr)