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Incidental Acquisition of Italian Words from Comic Books

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Abstract

Despite empirical evidence from research showing that the use of text-picture combination is beneficial for second language (L2) learning, little is known about the effectiveness of reading comic books for incidental vocabulary acquisition. This study investigated the effects of engaging with comic books on incidental learning of L2 Italian vocabulary. Using a pretest-posttest design, we collected data from 35 Iranian learners of Italian as a foreign language, 25 of whom read and then read while listening to four comic books in a four-week period. Additionally, after reading each book, students completed two follow-up meaning-focused activities focusing on learners' unprompted use of vocabulary. The results revealed that engaging with comic books was beneficial for incidental vocabulary acquisition. The findings suggest that comics are a valuable and effective source of language learning, and their inclusion in L2 teaching and learning can be particularly advantageous to L2 learners, including novice learners.

***Keywords*:** Second language acquisition, vocabulary acquisition, incidental learning, Italian as a foreign language, comics, reading, reading-while-listening

Studies on vocabulary acquisition have distinguished between intentional and incidental learning. According to Nation (2018, p. 31), "incidental learning through reading occurs when the reader's attention is focused on the ideas content of the book and vocabulary is picked up through guessing from context". While intentional learning is regarded as the most effective approach to vocabulary acquisition (Nation, 2001; Schmitt, 2008), incidental vocabulary learning from meaningful second language (L2) input is also regarded as an essential part of vocabulary development given the limited amount of classroom time (Pellicer-Sánchez & Schmitt, 2010).

The importance of input in second or foreign language acquisition is widely acknowledged (Gass, 2017). Reading is one of the main "*meaning-focused input*" activities used in L2 teaching and learning, as well as one of the most extensively studied modes of L2 acquisition (Grabe & Stoller, 2011; Nation, 2013, p. 204). Concerning vocabulary learning, previous research has

consistently shown the value of reading for L2 lexical development (e.g., Feng & Webb, 2020; Nation, 2018; Pellicer-Sánchez, 2016; Vu & Peters, 2020). Such studies have addressed vocabulary learning through different reading modes, e.g., repeated reading (e.g., Horst & Meara, 1999), and audio-assisted reading (or reading-while-listening) (e.g., Webb & Chang, 2015), as well as various kinds of reading materials, including authentic texts (e.g., Pellicer-Sánchez & Schmitt, 2010), and simplified readers (e.g., Waring & Takaki, 2003). Those studies have shown that reading L2 materials leads to vocabulary development. Furthermore, researchers have also investigated to what extent post-reading activities, such as translation tasks and comprehension tasks, may further boost vocabulary learning. The findings emerging from those studies show that the combination of reading and post-reading activities is more beneficial for fostering vocabulary growth than reading only (Laufer & Rozovski-Roitblat, 2015; Peters, 2012a, 2012b).

Comic books, being compelling and engaging, can be regarded as a noteworthy source of written L2 input. According to Cary (2004), visual materials assist L2 learners in bringing meaning to unknown words. Consequently, the L2 structures become accessible and more comprehensible in such a way that the text is easy and pleasurable to (re)read. Furthermore, visuals and contextual cues tend to facilitate vocabulary acquisition by aiding L2 learners to dually code the encountered words through making associations between pictures and words (Paivio, 1986). In other words, readers can learn better when they have access to pictorial and linguistic information simultaneously as it helps them in making mental connections between written input and visuals. This means that items encoded in both imagery and verbal systems have an increased chance of being learnt (Mayer, 2014).

In spite of the large number of reading studies, comic books have received little attention. Consequently, more research is needed to yield further insights into the effectiveness of this type of written input and the combination of engaging with comics with post-reading activities for vocabulary learning. The current study aims to fill this gap.

Literature Review

Research on L2 Vocabulary Acquisition through Reading Comics

A considerable amount of research on vocabulary acquisition has investigated how L2 lexical growth occurs as a result of reading materials written for first language (L1) speakers and for L2 speakers, such as graded readers (e.g., Boutorwick et al., 2019; Feng & Webb, 2020; Waring & Takaki, 2003; Webb, 2007). These studies have highlighted the value of reading for learning multiple aspects of L2 word knowledge. Essentially, many researchers have reported considerable incidental vocabulary learning rates from extensive reading, and thus, suggested that learners should be motivated to read in large amounts (Horst, 2005; Pigada & Schmitt, 2006).

Previous research on multimedia learning and the use of contextual visual cues, including graphic novels and comics, has revealed facilitative effects of text-picture combination on comprehension, engagement, reading enjoyment and fluency (see Clark et al., 2006; Iwahori, 2008; Mayer, 2009). Despite empirical evidence from research and case studies to support that

comics are beneficial for language learning, a relatively small number of studies have addressed the use of comic books in L2 teaching and learning (see Jones, 2010; Norton, 2003; Yildirim, 2013). Further, most studies have focused on learning English. Moreover, much of the existing literature on this topic has focused on the role and effectiveness of using comics in enhancing comprehension and reading motivation (see Cary, 2004; Krashen, 2004, 2005; Liu, 2004).

Nonetheless, reading comic books can be a great support to L2 learners' lexical growth, particularly for schema[1] formation and memory formation and recall because of the presence of visual information (Clark et al., 2006, pp. 30-37). In this regard, Liu (2004, p. 226) highlights different functions of using a combination of text and visuals, including "representation" (i.e., "visuals repeat the text's content or substantially overlap with the text"), "interpretation" (i.e., "visuals provide the reader with more concrete information"), "transformation" (i.e., "visuals target critical information in the text and recode it in a more memorable form"), and "decoration" (i.e., "visuals are used for their aesthetic properties or to spark readers' interest in the text").

In essence, comics provide informative context and visual cues, which may help learners make accurate guesses about the meaning of unknown words (Williams, 1995, Norton, 2003). They also include different registers, styles, and language modes, including formal, informal, written, and spoken language (Williams, 1995). These are important linguistic aspects that can be included in L2 teaching by using comic books.

Salazar (2019) conducted a pretest-posttest study and used survey and interview as measurement instruments to examine the effects of reading comics on comprehension and vocabulary recognition. The results showed that learners who used comic books outperformed the text-only group in both reading comprehension and vocabulary recognition tests. Salazar concluded that comics are a practical tool for literacy and language teaching and learning that can also motivate hesitant readers.

Taken together, while these and other studies (e.g., Bowkett, 2011; Jacobs, 2007; Merc, 2013) have hitherto addressed the effects of comics on comprehension, learner motivation, and literacy education, more research is needed into the role of reading comics in L2 vocabulary learning.

Repeated Reading and Assisted Reading

Most research on incidental vocabulary acquisition from reading has focused on reading a text once. Yet, some studies have focused on vocabulary learning through repeated readings of the same text. Horst and Meara (1999), for example, had their participant read the same L2 text, i.e., a Dutch comic book, once a week over a period of eight weeks and measured their incidental vocabulary learning gains after each reading. The authors reported a consistent increase of learned words after each reading.

Furthermore, some studies have investigated the effects of audio-assisted reading (i.e., reading while simultaneously listening to an aural version of the text). Brown, Waring and Donkaewbua

[1] "Schemas are memory structures that permit us to treat a large number of information elements as though they are a single element" (Clark et al., 2006, p. 28).

(2008) were among the first to study the impact of audio-assisted reading on incidental vocabulary acquisition by exploring Japanese students' learning gains in reading-only, reading-while-listening, and listening-only conditions. Brown et al. found no difference in outcomes of reading-only and reading-while-listening modes.

Webb and Chang (2012) compared vocabulary learning in unassisted and audio-assisted conditions involving 82 Taiwanese English as a foreign language (EFL) learners. Over two seven-week periods, each group read or read and listened to 28 short stories several times. Students' learning of 100 words was measured in two posttests on form and meaning recognition administered after each seven-week period. The results showed that students learnt more new words in the reading-while-listening condition. Webb and Chang (p. 284) highlighted that "the prosodic features of the oral text in assisted repeated reading may improve comprehension by helping readers segment the text into more meaningful chunks of language rather than reading the text word-by-word". While in a similar study, Webb and Chang (2015) found evidence in support of audio-assisted reading on incidental vocabulary learning, Vu and Peters (2020) in their study on learning vocabulary from unassisted, audio-assisted, and reading with textual input enhancement found no significant difference between reading-only and reading-while-listening learning gains.

Post-Reading Activities

In foreign language classrooms, reading activities are often followed by post-reading activities, such as discussion, translation, and comprehension tasks. Research on L2 vocabulary learning has investigated the effects of such activities on lexical development and has mostly suggested that post-reading activities, particularly word-focused activities, yield better vocabulary uptake compared to a reading-only condition. Laufer (2001), for instance, explored students' vocabulary learning in three different conditions, namely, 1) reading while having access to a dictionary, 2) reading while having access to a dictionary and doing a sentence-writing task, and 3) completing a sentence writing task with provision of target words' definitions. The results of the immediate posttest indicated that students in condition 2 outperformed the other groups. Nevertheless, Laufer found no significant difference between second and third groups' performance in the delayed posttest. Yet, these two groups outperformed the reading-only group.

In another study, Peters (2012a) examined the effect of two attention-drawing techniques, namely typographic salience and directing learners' attention to formulaic sequences, on recall of German formulaic sequences and single words after reading a glossed text and doing two post-reading activities i.e., writing down unknown words and then summarising the text. The results showed that typographic salience led to better recall scores. Significantly, Peters found that the summary task had a positive effect on participants' recall of new words.

In a similar line of research, Laufer and Rozovski-Roitblat (2015) investigated L2 vocabulary learning by comparing word retention rates in either or a combination of different task-type conditions (viz. reading only, reading with a dictionary, and reading and word-focused exercises), and different number-of-encounters conditions. The findings revealed that, irrespective of the number of encounters with the target words, reading followed by word-focused exercises yielded the best results. Thus, the authors posited that "what learners do with

the word may be more important than how many times they come across it, since it is the nature of the task that determines how effective multiple encounters will be" (p. 21).

Rationale and Research Questions

The main objective of the present study is to explore the effects of reading comics on incidental vocabulary development. Additionally, the study probes into a less-investigated language, viz. Italian. As for the significance of this study, while to date, some studies have focused on L2 teaching and learning through reading comic books (see Cimermanová, 2014; Russi, 2017; Sadam, 2018), the number of studies on vocabulary learning from comics are still scarce (see Horst & Meara, 1999). Given the beneficial effects of post-reading activities (Laufer & Rozovski-Roitblat, 2015; Peters, 2012b), this study also explored how using freshly encountered words in speech and writing may affect lexical gains, as little research has looked into the effect of spontaneous word use in post-reading activities to further lexical gains.

To address the aforementioned gaps, this study seeks to answer the following research questions:

1. What is the effect of reading/reading-while-listening comic books on incidental L2 vocabulary learning?
2. Does the students' spontaneous use of new words in their oral or written post-reading language production have any impact on their incidental vocabulary learning gains?

Method

Research Design

The current study adopted a longitudinal pretest-posttest design to study the effects of reading comic books on incidental L2 vocabulary learning. We used a between-subjects design to determine the amount of learning.

Participants

The study had initially sampled 40 Iranian university students (L1 = Persian). However, data of five participants were removed from the analysis as these five students either missed one or more of the four reading sessions or did not take the posttest. Thus, the final number of participants was 35 L2 Italian learners (24 female and 11 male), who were studying in the first or second year of their undergraduate degree. Their ages ranged between 18 and 23 years old (M = 20.5, SD = 2.5). According to students' self-report, as well as their professors' estimates of their language proficiency, the first-year students had an elementary proficiency (A2) in Italian, and the second-year students had an intermediate proficiency (B1-B2). In order to have a homogenous experimental group in terms of language proficiency, the first-year students (N = 25) were assigned to the experimental group, whereas the second-year students (N = 10) formed the non-treatment control group.

Reading Materials

Four Italian graded comic books were used in the experiment, namely, *Una Storia Italiana* (level A1/A2, length: 1,213 words), *Il Mistero di Casanova* (level A1/A2, length: 2,022 words), *Rigoletto* (level B1, length: 2,204 words) *Habemus Papam* (level B1, length: 3,576 words). These books were selected since, being specifically designed for L2 learners, they were of adequate difficulty. Using graded readers is desirable "as the vocabulary load is both fine-tuned for the learner's level, and systematically recycled" (Schmitt, 2010, p. 32). An analysis of the books using READ-IT[2] (Dell'Orletta, et al., 2011) (see Figure 1) showed that most of the books' lemmata were from the base vocabulary list in Italian, of which 81% are core lexis, 15% common lexis and 4% accessible lexis (see the following part for a concise explanation of this classification). Moreover, as illustrated in Figure 2, these books are scored as highly readable, obtaining a fairly low, i.e., 1.8%, lexical difficulty level.

Figure 1

The Lexical Profile of the Comic Books (READ-IT)

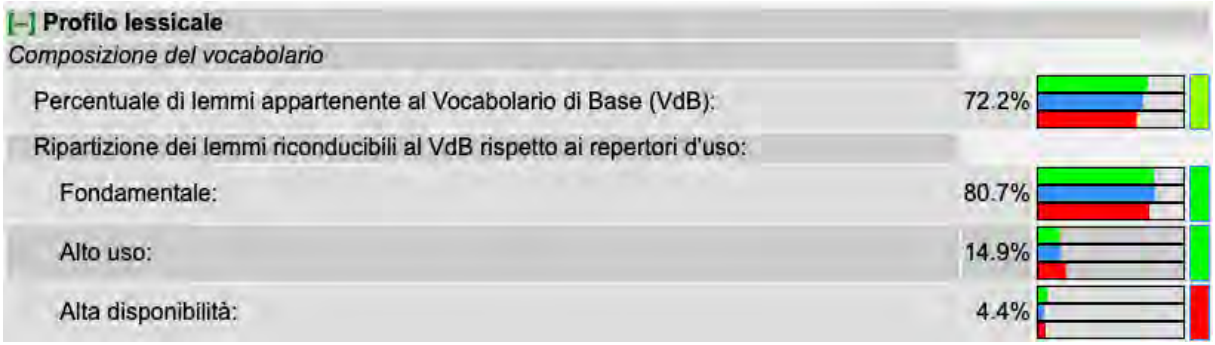


Figure 2

Readability Analysis of the Comic Books (READ-IT)

Target Words

We selected 82 Italian words as target words in order to have a large sample (Schmitt, 2010). Moreover, no cognates, loan words or neologisms were included in target words since these variables are shown to influence vocabulary learning (e.g., Peters, 2020). Additionally, given the students' proficiency level, we did not include words with an idiomatic meaning.

[2] READ-IT (2011). DyLan TextTools v2.1.9. Available at http://www.ilc.cnr.it/dylanlab/apps/texttools/?tt_user=guest

Furthermore, all of the target items (except for two words, i.e., *conclave* and *buffone*) were from the 'base vocabulary' list in Italian (*lessico di base*; De Mauro, 2016) from which 43 were from around 2000 'core lexis'[3] (*lessico fondamentale*), 33 from around 3000 'common lexis'* (*lessico di alto uso*) and 4 from around 2500 'accessible lexis' (*lessico di alta disponibilità*). Moreover, the target items consisted of different word classes, namely noun (N = 50, 60.97%), verb (N = 17, 20.73%), adjective (N = 13, 15.85%) and adverb (N = 2, 2.43%). This selection of words reflects the distribution of word classes in the base vocabulary list in Italian i.e., 60.6% nouns, 19.6% verbs, 15.4% adjectives and 2.0% adverbs (Lorenzetti, 2002, p. 37).

As for the items' frequency of occurrence in the experiment, the target words were divided into six categories according to how many times each word appeared in the comic books. It is to be specified that lemmata were used as the unit of counting, whereas the base forms of the words were included in the measurement instruments. (See Appendix A for the list of target items.)

Vocabulary Size Test

LexITA was used to measure students' prior vocabulary knowledge (Amenta et al., 2020). This test was used as it is a validated and reliable test developed specifically for measuring Italian L2 learners' receptive vocabulary size. It is a quick assessment tool that entails all proficiency levels (p. 6). The results of the students' vocabulary size test are presented in Table 1.

Table 1

Results of the LexITA Vocabulary Size Test

Sample	*N*	*Mean*	*SD*	Min	Max
Experimental group	25	14.4%	9.73%	3%	39%
Control group	10	31.4%	11.97%	13%	54%

Pretest and Posttest

As suggested in the literature (Nation & Webb, 2011), different word knowledge aspects were tested. To be specific, both recall format and recognition format were included in the tests.

Before taking the pretest, students completed a background and demographic survey including privacy information where they gave their consent for their data to be collected, analysed, and used by the researchers. For reasons of comprehensibility, the survey was provided in L1. At this point, it is noteworthy that, since participants were not informed about the purpose of the study, they were assured that the test they were about to take would not be part of their course evaluation, and thus, would not yield any grade.

[3] Author's translation

The test consisted of three sections, namely form recall, meaning recall and form recognition which were offered in descending order of difficulty to avoid test effects. Given the practical limits to the number of items that could be tested in a single test administration (i.e., infeasibility of testing $82_{\text{items}} \times 3_{\text{test formats}} = 246$ items in a test), different target words were included in each test format. That is to say, each word was tested in one format only. In this way, different aspects of word knowledge could be tested without making the test unreasonably long.

Additionally, in order to make sure that the purpose of the study would not be revealed, the pretest was disguised "by adding 'red herring' distractor elements", i.e., a number of grammar questions to the pretest (Schmitt, 2010, p. 178). These items were located at the very end of the test to prevent test fatigue affecting students' responses. In addition, in order to make the target words less noticeable and reduce the chance of learners identifying the real target words, a number of "distractors", i.e., 13 nontarget words, were also added to the pretest (p. 180). As Schmitt (2010, p. 178) aptly highlights, "these additional pretest elements will take up extra time, but would be worthwhile if they distract the participants from the true nature of the research design".

Concerning the form recall format, we asked learners to translate target words into Italian. To be specific, the Persian equivalent of the target words were provided in isolation, and students were asked to write down the Italian words. Nevertheless, the initial letter of the target items was provided to disambiguate between different synonyms of each target item and limit the possible responses. Only for the word *padrone* the first two letters were given in order to leave out its synonym *Proprietario*. In this regard, it should be noted that, since lemmata were the unit of counting, all correct forms of the required target item (lemmata) were considered acceptable. For example, if the base form of the target item was *preoccupare* (verb), *preoccupato* (past participle) was also assigned as a correct answer. In the same vein, *gioielli* (noun, plural) was marked as correct for the base form *gioiello* (noun, singular).

As for the meaning recall format, we asked learners to translate target words from Italian into Persian. Initials were not provided in the meaning-recall task.

As for the form-recognition task, we used a modified version of the Vocabulary Knowledge Scale (Wesche & Paribakht, 1996) and asked students to indicate their level of familiarity with each of the target items, presented in isolation, by choosing between three options:

1) I have never seen this word before
2) I have seen this word, but I don't know its meaning
3) I know the meaning of this word

It should be noted that we did not ask students to provide the meaning of the words in the form-recognition task. However, students' knowledge of the meaning of words that they marked by option 3 was evaluated during the interviews (see the following section). We chose this self-report checklist not to make the test too demanding. Nevertheless, we included the third option to encourage students to reflect on words, thereby giving more reliable answers. Therefore, we assigned a score of 0 to the first option and 1 to either option 2 or 3.

Moreover, we opted for this scale, rather than, for example, the Schmitt and Zimmerman's scale[4] (2002), since it was important for the purpose of this study to obtain information about any change in vocabulary knowledge rather than tap into the depth of that knowledge. Furthermore, these formats (i.e., translation and self-report scale) were appropriate as they suit the students' proficiency level and allow testing a greater number of items.

Even though frequency of occurrence was not a research aim, we tried to control for it by evenly assigning the different frequencies to the three test formats. For example, three out of eleven words in the 6-8 frequency group were involved in the form-recognition task, four in the form-recall and four in the meaning-recall tasks. However, since the 20+ group consisted of only two words, one of them was involved in the form-recall and one in the form-recognition tasks. Thus, 25 items were included in the form recall, 25 in the meaning recall, and 32 in the form recognition.

Finally, it should be noted that the test was piloted by asking six learners with a similar profile to complete the tests and give feedback regarding tasks and test comprehensibility. The test was then revised before the actual data collection process. For example, the test initially had included an association task which was then changed to translation task.

Interview

To further explore the students' vocabulary gains and their overall reading experience, semi-structured post-experiment interviews were conducted. The interviews had a threefold purpose. First and foremost, during the interviews, the researcher confirmed if the vocabulary development happened as a result of reading the comic books. Secondly, students' attitude towards reading comic books as a language learning material was explored. Finally, students' knowledge of the meaning of the target words included in the recognition task was assessed. This was done by asking the students to define or translate those words that they had reported as acquired only in the posttest (i.e., I know the meaning of this word).

Procedure

The experimental procedure consisted of five sessions in a five-week period. One week before the start of the experimental treatment, both experimental and control groups took the vocabulary size test and the pretest. Nevertheless, students were not told that a vocabulary posttest would follow.

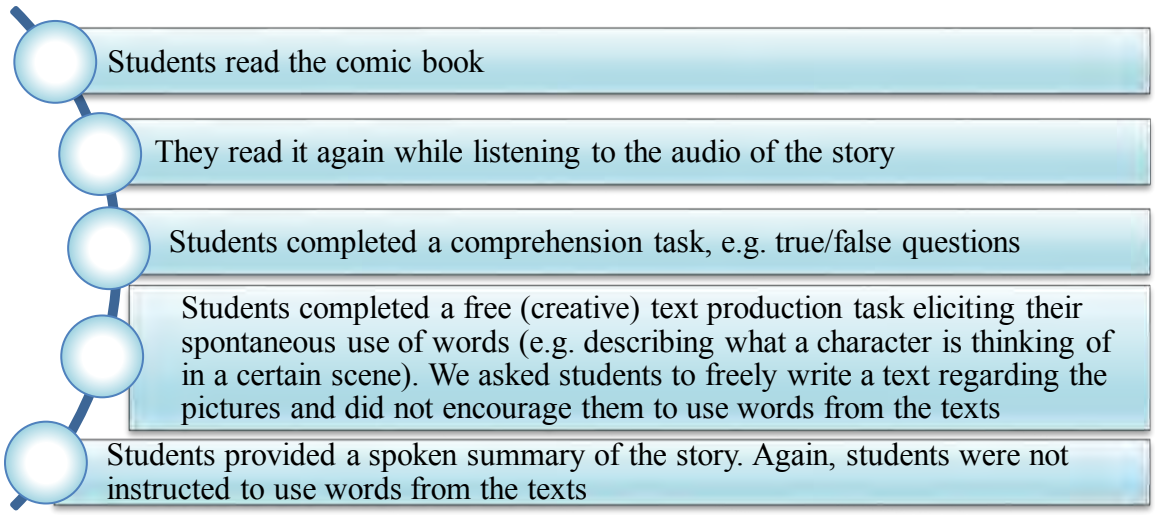
Moreover, the experimental group participated in four reading sessions. Specifically, to engage the participants with the texts twice, each session consisted of combined unassisted and audio-assisted (repeated) readings of one comic book followed immediately by a number of post-reading activities described in Figure 3. It is noteworthy that, given the students' language proficiency level, i.e., elementary level, the reading-while-listening condition was deemed

[4] Which instead distinguishes between receptive and productive knowledge (see Schmitt, 2010, p. 221-224 for a concise overview).

appropriate as it aids students' concentration, reading rate, and reading comprehension (Webb & Chang, 2012). Thus, by having students read the comics for a second time while listening to the aural version of the story we could make sure that they were at least exposed to the aural form of the words (considering the probability that some students might have not finished reading the comics entirely). Essentially, considering the experiment was conducted online, the reading-while-listening mode was also beneficial in reducing the likelihood of distraction, thereby helping participants stay focused.

Figure 3

Steps of the Experimental Treatment



Because of the implemented restrictions due to the Covid-19 pandemic, both reading sessions and data collection were carried out online. Hence, Skype was used to conduct the reading sessions and interviews. Further, Google Forms were used to administer the pretest and posttest and the online version of LexITA was used to measure students' prior vocabulary knowledge. Likewise, the comprehension tasks and text production tasks were all done on Skype. It should be specified that due to the time constraint, no activity was done beyond the repeated readings during the last session.

Concerning the last task, i.e., summarising the story, students sent their summaries as voice messages on WhatsApp directly to the researcher. On average, fifteen of the 25 students (viz. 16, 15, 14, and 15 students per each reading session, respectively) completed all the post-reading activities, even though all students were asked to do so. Finally, at the end of the last session, students took the posttest, for which they needed on average 15 minutes. To determine whether vocabulary knowledge gains were the outcomes of the treatment, the control group, who never read the comic books, completed the posttest after the same time span. It is noteworthy that the control group did not engage with the comic books. Their involvement served to control for words that the participants might have learnt outside the experiment, given that all participants of the study were studying Italian at university.

Because students read a different comic book in each session, we administered the posttest at the end of the last session, so target items were tested after different time periods. That is, target words from the first book (see Appendix B) read in the first session were tested after three weeks, while words from the last book read in the fourth session were tested immediately. By doing so, we could obtain information about "stable and durable" learning gains persisting for three weeks (Schmitt, 2010, p. 157). Moreover, we administered the posttest only once not to divulge the aim of the study by testing the participants at the end of each session. This procedure was also beneficial in that it helped the inclusion of a delayed posttest without running the risk of further participant dropout.

After the posttest, the experimental group was invited to volunteer for a follow-up interview. Within a week following the last session, one individual interview was conducted with each of nineteen students who agreed to do an interview. Students were free to choose to respond in either Persian or Italian; however, all of them tried to give their answers in Italian (except for when they were asked to provide the meaning of some of the target words). On average, each interview lasted around 20 minutes. The interviewees were informed that the interview would be audio-recorded, and they all expressed their consent. Accordingly, the students were assured that their identities would be fully kept confidential and that their personal data would not be distributed to other parties. Correspondingly, to respect participants' privacy and to anonymise the data, pseudonyms were used to report the participants' responses. Evidently, the real nature of the research was never revealed to students as it could bias their answers.

Results

All tests were scored dichotomously with 1 for a correct answer and 0 for an incorrect answer. All data were scored by the researchers. The recall tests were also scored by a second rater. The interrater reliability was 0.99.

The pretest and posttest scores are summarised in Table 2. In the experimental group there was learning in all test formats. Measurable vocabulary learning of 7.84 out of 25 was observed for target words tested in the form recall, 6.08 out of 25 for meaning recall, and 14.12 out of 32 for form recognition.

A non-parametric Friedman test (data not normally distributed) was calculated to evaluate students' learning. Results demonstrated that the gain from pretest to posttest was statistically significant: form recall (χ^2 (1, n = 25) = 25, p < .0001), meaning recall (χ^2 (1, n = 25) = 25, p < .0001) form recognition (χ^2 (1, n = 32) = 21.125, p < .0001). The results revealed that vocabulary can be incidentally acquired through reading/reading-while-listening comic books without any explicit attempt to teach new vocabulary. Moreover, even though the control group generally knew more words compared to the experimental group (as revealed in the pretests), no significant learning was observed in their posttest results. Therefore, in the light of this finding, the experimental group's vocabulary gains can be ascribed to the experiment.

Table 2

Descriptive Statistics of Test Scores

Group	*N*	Form Recall		Meaning Recall		Recognition of Form	
		Pretest Mean (*SD*) [95% CI]	Posttest Mean (*SD*) [95% CI]	Pretest Mean (*SD*) [95% CI]	Posttest Mean (*SD*) [95% CI]	Pretest Mean (*SD*) [95% CI]	Posttest Mean (*SD*) [95% CI]
Experimental	25	9.44 (6.13) [7.03, 11.84]	17.28 (6.31) [14.80, 19.75]	9.52 (5.82) [7.23, 11.80]	15.6 (5.53) [13.43, 17.76]	10.62 (6.02) [8.26, 12.97]	21.65 (6.41) [19.13, 24.16]
Control	10	13.2 (5.51) [9.78, 16.61]	13.3 (5.59) [9.83, 16.76]	10.6 (6.22) [6.74, 14.45]	10.5 (6.94) [6.19, 14.80]	24.2 (4.87) [21.18, 27.21]	27.6 (3.92) [25.17, 30.03]

Note. *Max for Recall Format = 25; Max for Form-Recognition Format = 32; CI = Confidence Interval*

Table 3

Students' Successful Form and Meaning Recall of Words That They Had Used in Their Written/Spoken Language Production (N = 25)

Number of times target words were used by students in their writing or speaking	Test format	Pretest				Posttest				Absolute gains		Relative gains (%)
		M	*SD*	Min	Max	*M*	*SD*	Min	Max	*M*	*SD*	
= 0 (i.e., target words that students did not employ in their output)	Form recall (Max = 2)	0.92	0.4	0	2	1.04	0.2	1	2	0.12	0.33	6%
	Meaning recall (Max = 7)	3.76	1.64	1	7	4.44	1.60	1	7	0.68	0.80	9.71%
< 15	Form recall (Max = 6)	1.44	1.55	0	6	2.8	1.25	1	6	1.36	0.99	22.66%
	Meaning recall (Max = 6)	2	1.2	0	5	3.48	1.22	2	6	1.48	1.08	24.66%
15-30	Form recall (Max = 9)	4.36	1.72	2	8	7.24	1.2	4	9	2.04	1.01	22.66%
	Meaning recall (Max = 7)	1.88	1.23	0	5	4.88	1.33	2	7	3	0.95	42.85%
>30[5]	Form recall (Max = 4)	1.48	1.04	0	4	3.8	0.40	3	4	2.32	0.98	58%

As for the second research question, further analysis of students' individual lexical growth revealed that words that students used spontaneously in their post-reading activities were noticeably better learned than words not used (see Tables 3 and 4). More specifically, students had an increased rate of success in recalling and recognising words that they used more frequently in their spontaneous written or oral L2 production. The results suggested that students' knowledge of target words was notably enhanced after using them more than twice in their output. Words encountered in the last session (see Appendix B) were not included in this comparison as students did not have the opportunity to use them in any post-reading activity (see *Procedure*).

As mentioned earlier, not all students completed all post-reading activities. On average, fifteen students completed both writing and speaking tasks expected after reading each comic book. This unpredicted lack of students' collaboration gave the researchers the opportunity of drawing a comparison between these two groups of students. Thus, further analysis of vocabulary development of each group showed that students who had used new words in their spontaneous post-reading language production outperformed by almost 75% those who had not. In other words, students who strived to use new vocabulary in either their speech or writing, learnt more new words and obtained better results in the posttest.

Table 4

Students' Successful form Recognition of Words that They Had Used in Their Written/Spoken Language Production (N = 25)

Number of times target words were used by students in their writing or speaking	Pretest				Posttest				Absolute gains		Relative gains (%)
	M	*SD*	Min	Max	*M*	*SD*	Min	Max	*M*	*SD*	
= 0 (i.e., target words that students did not employ in their output) (Max = 12)	4.04	2.52	1	10	5.32	2.26	3	12	1.28	0.73	10.66%
< 15 (Max = 10)	4.6	1.84	2	10	6.64	1.97	3	10	2.04	1.33	20.4%
>30 (Max = 3)	0.56	0.65	0	2	2.36	0.48	2	3	1.8	0.70	60%

As for the qualitative findings, during the interviews, the researcher first enquired if students had encountered the acquired words outside the experiment. Since all students confirmed that they had not met the newly learnt words elsewhere, it can be argued that the students' vocabulary development occurred as a result of reading/reading-while-listening the comic books and completing the immediate follow-up activities tapping into learners' spontaneous use of the target words. Moreover, the students' attitudes towards reading comic books were explored, which revealed that students enjoyed reading comic books and found them interesting and engaging.

Discussion

The present study had two aims. First, we investigated the effects of reading and reading-while-listening to comic books on incidental L2 vocabulary learning. Second, we examined whether the students' spontaneous use of new words in the post-reading activities exerted any influence on their incidental vocabulary learning gains.

The study extends previous findings into vocabulary learning by focusing on comic books. Engaging with the comic books and the post-reading activities resulted in considerable learning gains. To be specific, students picked up 7.84 new words incidentally out of 25 words tested in the form-recall format, 6.08 new words out of 25 words tested in the meaning-recall format and 14.12 new words out of 32 words tested in the recognition format. The results provide evidence for the potential of comic books for L2 learners to enhance their vocabulary. Moreover, the findings suggest that incidental learning is intensified when learners use freshly encountered words spontaneously in their written or spoken post-reading L2 production.

Contextual Information and Pictorial Cues

The findings of the study are consistent with findings of previous research on vocabulary learning from different types of multimedia input. For example, Mayer (2014) found that learning is more effective when input includes a combination of texts and pictures rather than only texts. Similarly, Peters (2019), in her research on the effect of imagery on vocabulary learning from audiovisual input, found that on-screen imagery facilitates incidental vocabulary acquisition. She concludes that "words with on-screen imagery are almost three times more likely to be picked up incidentally than words without imagery", at least at the level of meaning recall and form recognition knowledge of the words (p. 1023).

Figure 4 is an example of pictorial cues in a comic that might lead to memory formation by helping learners to make associations between words, their meanings, and the visual information. In this context, students had a "high quality" meeting with the word *maschera* (mask) as it is the topic of the conversation and is accompanied by images. In other words, the appearance of the word *maschera,* together with its corresponding pictures, aids the creation of a form-meaning link, which is indispensable for acquiring a new word. Similar results were observed by Peters (2019), indicating that the on-screen pictorial information gives learners access to the meaning of words. Moreover, she found that when the visual image appears in close proximity of the word, that is, "within 5 seconds before or after the spoken occurrence [in the case of audiovisual input] learners might be able to link the two sources of information and create a semantic match" (p. 1024). With regard to comics, it can be argued that a visual clue is in close proximity of a word when it appears in the same panel containing the word (as in Figure 4) or in the preceding or following panels, as far as they appear in the same page.

[5] Considering that on average 15 students completed all L2 production tasks, >30 means that, on average, each word was used at least twice by each student.

Figure 4

An Excerpt From "Il Mistero di Casanova" (Lovato, 2014, p. 19)

The positive role of imagery information was further supported by the qualitative data since, without any indication from the researcher to vocabulary learning, eighteen out of nineteen interviewed students expressed that they had learnt (many) new words. The students explicitly pointed out that it was easy and fun to learn new vocabulary from comic books because they did not have to search the meaning, but they could guess or understand it from pictures. For instance, Viola said: "I have learnt the name of different pieces of jewellery because their pictures helped me understand [the meaning] and remember them; they were also repeated several times in the book"[61]. Similarly, Lorenzo stated: "for me, reading comic books was an effective way of learning Italian, it was much easier to understand meaning of the new words with comics; I didn't have to use a dictionary"*.

Moreover, most students stated that they loved learning Italian from reading comic books because they were entertaining and pleasurable, thus, they did not get bored or tired from reading. They remarked that they were glad of learning Italian with comic books (as it was their first experience of reading a (Italian) comic book), and that they would continue reading Italian comic books in the future.

Spontaneous Use of New Words in Speech and Writing

The quantitative results demonstrated that the target words that students had spontaneously used in their writing or oral summary of each story were recalled or recognised better compared to the target words they did not use in their post-reading output. The results suggest that using freshly encountered words in post-reading L2 production can improve students' lexical growth. This finding can be explained in the light of the "depth-of-processing hypothesis" (Craik & Lockhart, 1972; Craik & Tulving, 1975) which postulates that retention of information is determined by the way it is processed. Accordingly, it can be argued that since students needed to process the lexical information of newly met words thoroughly in order to first work out their meaning and their grammatical category, and then focus on their orthography or pronunciation (to use the

[1]Author's translation.

words in their writing or speech), they were more successful in remembering the words 1-3 weeks later. This finding is consistent with the finding of Peters' (2012a) study reporting that "the summary task, in as far as it prompted participants to use target items, yielded high recall figures" (p. 75).

Moreover, students' learning of new vocabulary can also be attributed to what Nation (2013, p. 110) calls "creative use" as students used previously met words in ways that differed from the previous meeting with the word, forcing them "to reconceptualise their knowledge of that word" (p. 110). In other words, having to produce the words in the post-reading activities required "a form of mental elaboration that deepens or enriches the level of processing of a word", which in turn improved learning and helped students "establish the memory of the word" (pp. 110-112).

The results from interviews also supported this finding as most interviewed students found the task of providing a summary of each story a useful post-reading activity that boosted their vocabulary learning. For example, Lorenzo said: "I liked the task of summarising the stories, it helped me review new words"*. In the same way, Giulia said: "the summary task helped me practice and learn more"*. This finding extends previous findings into word-focused activities by showing that also spontaneous post-reading activities (that do not explicitly require learners to use new words) can promote vocabulary learning.

Limitations and Future Research

Although best efforts were made to carefully design this study, it is not devoid of limitations. First, because of the implemented restrictions due to the Covid-19 pandemic, the experiment was conducted entirely online. This might have influenced the students' performance negatively because of factors such as poor concentration and getting distracted, and problems connected to a poor or unstable internet connection. In other words, the results might have been different if the experiment had not been conducted completely online, considering that students could have been better involved. Thus, a replication of this study conducted in a classroom setting would offer better insights into the impact of reading comic books on incidental vocabulary learning.

Moreover, considering the experimental treatment involved both reading and reading-while-listening modes, the results of the study need to be interpreted with caution. The audio-assisted reading was essentially included in the treatment to both motivate participants to read the comics twice and help them concentrate, given the experiment was conducted online. Indeed, it was beyond the purpose of this study to explore the outcome of reading-while-listening. Thus, a study designed to investigate the effects of reading comic books on incidental vocabulary learning in a reading-only condition or a comparative study of reading-only and reading-while-listening conditions would be particularly informative.

Additionally, in our analysis, we did not differentiate between words that contained more pictorial cues and relatively less-imagery-supported words, which might have affected the learning outcomes. Therefore, future researchers might consider including this factor when studying vocabulary gains from comic books.

Lastly, the measurements used in the tests may not have been sensitive enough to detect small amounts of acquired knowledge of the target items. For example, it was observed in the interviews that students had some levels of understanding of the meaning of some of the new

words, which they had reported in the posttest to be familiar only with their forms (i.e., word form recognition). Therefore, it is essential for future studies to pay meticulous attention to the design of sufficiently sensitive tests that are capable of revealing any amount of lexical knowledge development. In this regard, it is highly recommended that researchers try to include qualitative methodologies, including in-depth interviews, in their research (especially when a self-report measurement is used) to enhance the quantitative findings.

Implications of the Study

The results of the present study revealed that learners can pick up new vocabulary from comic books. The qualitative findings showed that students generally enjoyed reading the comic stories and appreciated the experience of learning Italian in such a way since the comic books were perceived as enjoyable, engaging, and entertaining. These findings suggest that comic books might be a valuable and beneficial source of language learning that may be both read for pleasure and included in L2 programmes targeted at different age groups and proficiency levels. Clearly, L2 teachers might further increase students' learning rates by directing some deliberate attention to vocabulary.

Moreover, given the students' positive attitude towards comic books, it can be argued that comics can be included in L2 teaching and L2 reading programmes to foster reading and subsequently fuel lexical growth. Considering that many of the interviewed students stressed that they normally did not enjoy reading or did not read at all, but they liked reading comic books and would continue doing so, it can be said that comic books can also be motivating for those learners who are not keen on reading to spend some/more time reading. This finding is consistent with previous research findings indicating that comic books motivate learners to read (more) (Elsner, 2013; Krashen, 2005). Therefore, it is of no surprise that Krashen (2004) keenly advocates comics as a practical tool for English and, by extension, for foreign language teaching. Evidently, especial attention should be paid to vocabulary load of targeted comic books since not all comics are suitable for L2 learners as some comics include a large number of low frequency words making them difficult for L2 learners (Hayes & Ahrens, 1988). Thus, comics may be suitable for language teaching and learning if "the vocabulary load is fine-tuned" for learners' level and their vocabulary demands are within learners' capability (Schmitt, 2010, p. 32).

In addition, it is well established that reading is of paramount importance to L2 learners in order to not only boost their lexical knowledge but also to enhance their comprehension, reading skills, and grammatical knowledge (Nation, 2013). Thus, to improve such skills and linguistic knowledge, L2 teachers might easily use comic books to promote reading and involve their students in pleasurable and appealing readings which are authentic and include a variety of language patterns and different levels of language in terms of syntactic, semantic, and pragmatic complexity (Williams, 1995). Moreover, L2 teachers might help their students further increase their learning rates by training them to guess from context and teaching them necessary guessing strategies (Nation, 2013, p. 369).

Lastly, the findings of the study revealed that the students' spontaneous use of newly met words in speech and writing can substantially improve their vocabulary learning rates. In the light of this finding, it can be suggested that accompanying reading by follow-up activities, such as summarising the reading text, that make learners review what they have just read and use the new words in their language production might be greatly beneficial to foster vocabulary acquisition and enhance their knowledge of previously encountered words.

Conclusion

The present study addressed the effectiveness of comic books for incidental vocabulary learning. The results showed that considerable incidental learning occurs through engaging with comic books. In essence, visual information and pictorial cues in comic books help learners to work out the meaning of new words and retain this information longer. Moreover, the results indicated that post-reading activities which make learners process new words elaborately can improve vocabulary learning. In addition, the qualitative data revealed that comic books are motivating and engaging and thus can encourage learners to read more which subsequently increases the chance of vocabulary uptake. Thus, it can be argued that the inclusion of comic books and follow-up activities in L2 teaching and learning would be particularly advantageous to L2 learners to enrich their vocabulary knowledge. Finally, given the study's ecological validity (e.g., recruiting real L2 Italian learners, targeting actual Italian words, and using readers specially designed for L2 learners), the results of the study yield compelling empirical evidence in support of the effectiveness of comic books.

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Appendices

Appendix A

The following table illustrates the research target items (in base forms) and their respective word class and frequency of occurrence. The format of the words demonstrates the frequency band of each item where **boldface** is core lexis, normal font is common lexis, and *italic* is accessible lexis. The two words that are not part of the base vocabulary are reported in the brackets. These two words were included in the target items due to their high frequency of occurrence in the comic books and their key role in the texts. It is to be noted that the paper used the same method to distinguish between different lexis frequency bands that was used in "Il Nuovo Vocabolario di Base della Lingua Italiana" (De Mauro, 2016). The use of brackets, however, is a choice of the authors.

Table A1

The List of the Research Target Words

	Words	Word class	Frequency of occurrence
1.	**Avvocato**	Noun	**1**
2.	**Testimone**		
3.	Scandalo		
4.	Assassino		
5.	Leggenda		
6.	Attentato		
7.	Corruzione		
8.	*Alluvione*		
9.	**Sospetto**	Adjective	
10.	Sciocco		
11.	*Distratto*		
12.	**Cogliere**	Verb	
13.	**Matrimonio**	Noun	**2-3**
14.	**Omicidio**		
15.	**Contratto**		
16.	Ispirazione		
17.	Meraviglia		
18.	Corona		
19.	Preghiera		
20.	Magistrato		
21.	Prigione		
22.	Partigiano		
23.	Fango		
24.	**Improvviso**	Adjective	
25.	**Assurdo**		
26.	**Curioso**		

27.	Bugiardo		
28.	Onesto		
29.	**Gridare**	Verb	
30.	**Condannare**		
31.	**Combattere**		
32.	**Sparare**		
33.	**Sparire**		
34.	Vendicare		
35.	Rapidamente	Adverb	
36.	**Ponte**	Noun	**4-5**
37.	**Fortuna**		
38.	**Direttore**		
39.	**Giudice**		
40.	**Mostra**		
41.	**Guerra**		
42.	Fumetto		
43.	Elezione		
44.	Incubo		
45.	Busta		
46.	Perla		
47.	*Votazione*		
48.	**Potente**	Adjective	
49.	Eccezionale		
50.	Misterioso		
51.	Maledetto		
52.	**Arrestare**	Verb	
53.	**Seguire**		
54.	**Proteggere**		
55.	**Certamente**	Adverb	
56.	**Volo**	Noun	**6-8**
57.	**Commissario**		
58.	**Palazzo**		
59.	**Guardia**		
60.	**Sogno**		
61.	**Articolo**		
62.	**Ragione**		
63.	Temporale		
64.	**Innamorarsi**	Verb	
65.	**Convincere**		
66.	Eleggere		
67.	**Giornalista**	Noun	**9-12**
68.	**Sorpresa**		
69.	**Amante**		
70.	**Padrone**		
71.	Maschera		
72.	Ladro		

73.	Furto		
74.	Maledizione		
75.	[Buffone]		
76.	Strano		
77.	Scappare		
78.	Uccidere		
79.	Preoccupare		
80.	Rubare		
81.	Gioiello		
82.	[Conclave]		

Appendix B

Target Words Classified Based on the Sessions They Were Encountered

Session in which words were encountered	Frequency group	Form recall	Meaning recall	Form recognition
First session	1	Avvocato	Attentato Corruzione	Alluvione Scandalo
	2-3	Magistrato Matrimonio (17)	Fango (12) Omicidio Condannare (10)	Partigiano (3)
	4-5	Giudice (13)	–	–
Second session	2-3	Corona (11)	–	–
	1	–	–	Distratto
	4-5	Mostra (6)	Direttore (16) Perla (21)	–
	6-8	–	Commissario (17)	Volo (5)
	9-12	Maschera (23) Ladro (47)	Furto (16)	Rubare (43)
	20+	Gioiello (50)	–	–
Third session	1	–	Sospetto (5)	Testimone Sciocco
	2-3	–	Vendicare (17) Rapidamente	Bugiardo (4) Onesto Gridare
	4-5	Proteggere (18)	–	–
	6-8	Temporale (2)	–	–
	9-12	Buffone (15) Padrone (6) Preoccupare (19)	Maledizione (8)	Amante (46)
Fourth session	1	–	Leggenda	Cogliere

			Assassino	
	2-3	Preghiera	Ispirazione Assurdo	Contratto Sparare
	4-5	Elezione Votazione Misterioso	–	Busta
	6-8	–	Eleggere	Sogno
	20+	–	–	Conclave
Two or more sessions	2-3	–	–	Meraviglia (6) Prigione (8) Curioso Improvviso (12) Combattere (4) Sparire (3) Certamente
	4-5	Potente (16)	Incubo (8) Fortuna Seguire (5) Arrestare (28)	Fumetto Guerra (6) Ponte Eccezionale Maledetto
	6-8	Articolo (18) Guardia (17) Innamorarsi (49)	Ragione Convincere	Palazzo (34)
	9-12	Sorpresa (5) Giornalista (16) Uccidere (38)	Scappare (15)	Strano (13)

Note. *In Parenthesis: Number of Times Students Used the Word in Their Written/Spoken Production*

About the Authors

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