Research Articles

Understanding Incidental Vocabulary Learning in Practice

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In response to the recent surge of interest in incidental vocabulary learning, this article synthesizes ideas about such learning in practice. I specifically derive seven critical issues from studies on the topic. I also examine vocabulary learning through incidental means based on various input sources while considering frequency, context, motivation, and strategies and tasks to foster deeper mental processing and better retention. Findings can inform pedagogically sound guidelines for effective vocabulary instruction. Actionable suggestions are provided to enhance incidental vocabulary learning, given an understanding of relevant issues.

Introduction

Vocabulary is a catalyst for second language (L2) and foreign language (FL) learning. The importance of learning vocabulary becomes clear in the early phases of language acquisition. L2 and FL vocabulary learning has garnered academic interest over the past decades. Ample research has highlighted vocabulary as a key aspect of L2 acquisition, especially for incidental learning. These studies have documented the significance of vocabulary learning from this instructional focus. Considering how vocabulary can arise from instructional focus is useful for developing skills for language learning. Once a learner acquires their first thousand words through intentional learning during the initial stages of classroom instruction, vocabulary acquisition occurs mainly by guessing the

meaning of unknown words from meaning-focused input. Vocabulary development thus occurs as a by-product of such input. This argument offers a starting point to ponder how incidental vocabulary learning takes place in relation to exercises (e.g., reading, listening, and viewing) that entail comprehension.

To achieve better text-based understanding and knowledge construction, students need extensive vocabulary knowledge that grows through language learning experiences. Instructors and scholars agree on the importance of explicit, robust lessons to teach different components of vocabulary knowledge and support learners' verbal and written communication. Explicitly teaching vocabulary affords students opportunities to access academic language and discourse while facilitating reading comprehension. However, teachers and researchers also acknowledge the challenges of teaching every new word to learners. Apart from explicit instruction, vocabulary scholars have investigated learners' ability to guess the meaning of new words from context clues. These researchers have similarly studied ways to promote incidental vocabulary learning (e.g., through extensive reading in input-rich environments). Incidental vocabulary learning appears increasingly valuable from a pedagogical standpoint: students can acquire new words without specifically focusing on vocabulary. They can further develop their vocabulary knowledge subconsciously when partaking in meaningful activities such as reading. Webb (2020) defined incidental vocabulary learning from two perspectives. In terms of pedagogy, incidental vocabulary learning is a by-product of meaning-focused activities; from a teaching and learning angle, an activity's purpose matters more than the foci of intention and attention during it. These conceptualizations were meant to account for how this type of acquisition emerges from meaning-focused input. Incidental vocabulary learning seems contingent on the varied cognitive processes in which students participate. For example, learners likely have different intentions when engaging with input. Students' interests, needs, and priorities naturally differ in relation to vocabulary learning, as do their intentions— from obtaining information, understanding a message, or identifying language features to simply finishing an assigned task. Students' degrees of intention during incidental vocabulary learning inspire us to rethink how easily such learning might accompany meaning-focused reading, listening, and viewing activities.

Incidental vocabulary learning can be teacher-, researcher-, material-, or learner-driven. Students should be their own teachers to some extent. Yet this type of learning is a challenging part of FL acquisition and occurs rather slowly (Webb, 2020). Learning words is multifaceted, involving form (spoken, written, and word parts), meaning (concept, referents, and associations), and use (grammar, collocations, and constraints on use) (Nation, 2013). The process of incidental vocabulary learning remains nebulous given the numerous factors that shape students' success when trying to infer a word. One's level of vocabulary knowledge, degree of exposure, word-guessing strategies, context clues, background knowledge of target words, and language proficiency level jointly determine incidental vocabulary learning. Such learning is therefore influenced by attributes that are internal and external to a student. Seven issues warrant consideration in this respect.

Critical Issues

Issue 1: Vocabulary Can Be Explicitly Taught and Acquired Through Incidental Vocabulary Learning

Although a great deal of vocabulary is learned implicitly, some can—and should—be taught during class. Explicit instruction of words aids in students' vocabulary learning and reading comprehension. However, vocabulary also calls for understanding outside of word form, meaning, and use. Instructors may find it easier to teach form and meaning explicitly. Such instruction could be insufficient for the grammatical and collocation aspects of use because this knowledge involves pattern recognition and production. Implicit learning might be more effective in this case. I agree with Nation (2013) that instructors can explain the meanings of words, after which students can follow their teachers in completing exercises, using dictionaries, and reflecting on the meanings of high-frequency words. Meanwhile, students' brief attention to spelling and pronunciation should be supplemented with opportunities to encounter and produce word forms through repeated meaning-focused use. Students learning a foreign language acquire vocabulary through means such as talking, interacting, listening to stories, watching TV, and reading. Essentially, teachers must ensure that their students are capable of negotiating words' meanings. Instructors' major priority may therefore

not be teaching but planning, monitoring, and evaluating vocabulary lessons to foster incidental vocabulary learning.

As implied, incidental vocabulary learning occurs through numerous channels: reading a wide range of books or other written materials for pleasure (i.e., extensive reading), watching TV and films (i.e., extensive viewing), and listening to podcasts or other recordings (i.e., extensive listening). Vocabulary can also be explicitly taught through tasks such as flash cards, gap-fill exercises, and matching exercises. Teachers may design activities to engage students in reading, listening, and viewing as well. Yet the sheer number of words necessary for comfortable reading or listening cannot be gained through intentional learning alone; estimates suggest that people should know 8,000- to 9,000-word families for comfortable reading, while 4,000-word families are needed for listening. These grand numbers underline the need for intentional and incidental vocabulary learning. Intentional vocabulary study can help learners focus on meaning. Incidental vocabulary learning activities that provide repeated exposure to words via extensive reading, viewing, or listening might facilitate students' closer knowledge of words' form, meaning, and use, including collocation. This type of learning basically leads to a richer vocabulary.

Issue 2: Reading Input Is Essential to Incidental Vocabulary Learning

Reading is a primary source of input for L2 and FL learners. Difficulty with reading is a common problem for this population, and related obstacles can impede comprehension and the building of form–meaning links for new words while reading. This phenomenon may explain why some students find it challenging to pick up new words incidentally from reading. The relationship between vocabulary and reading is dynamic. Limited vocabulary and background knowledge contribute to reduced reading comprehension. In return, lower levels of reading input may lead to fewer opportunities for vocabulary learning. Teachers should be cognizant of the link between the density of unknown words and reading, for which learners need to have 98% coverage to demonstrate adequate and unassisted text comprehension (Hu & Nation, 2000). I would like to recommend reading materials that suit students' language proficiency extensively as one way to prompt incidental vocabulary learning. This proposition is in line with Nation's (2007) assertion that a

well-balanced L2 course should include roughly equal opportunities for learning through four strands: meaning-focused input (e.g., listening and reading); meaning-focused output (e.g., speaking and writing); a focus on form (e.g., opportunities for deliberate learning); and fluency development in listening, speaking, reading, and writing. Typically, deliberate learning accounts for 25% of a course; the other 75% should consist of communicative strands. Teachers need to weigh a course's balance to encourage incidental vocabulary learning from meaningful language input (e.g., comprehensible reading). Learners should make the best use of what they know by working with understandable materials across the skills of listening, reading, writing, and speaking. Once fluency develops, learners can expand the size of the language unit. Developing fluency in reading may also enable learners to move from reading at the word level to making use of vocabulary, phrasal, and syntactic knowledge while reading.

According to an early study on incidental vocabulary learning from reading (Nagy et al., 1985, p. 234), "incidental learning from context during free reading is the major mode of vocabulary acquisition during the school years, and the volume of experience with written language, interacting with reading comprehension ability, is the major determinant of vocabulary growth." Research supports the knowledge of words gained in small increments through repeated encounters in text. In addition, many studies have shown that incidental vocabulary learning through reading can fuel lexical development. Work on the incidental learning of single words in the contexts of L1 (Nagy et al., 1985), L2 (Day et al., 1991), and FL (Waring & Takaki, 2003) reflects the potential of reading in incidental vocabulary learning. Other studies (Pellicer-Sánchez, 2017; Webb et al., 2013) have documented the value of reading for learning collocations. Choosing appropriate texts and tasks (e.g., theme-related texts and tasks requiring word-level and text-based comprehension) should be considered as well, given the need to harness reading as a vocabulary development tool. Abundant evidence has reinforced reading's effectiveness for incidental vocabulary gains with respect to word form and meaning. However, focal texts can be manipulated: difficult words might appear at varying frequencies in a story or feature glosses that render the context readily understandable (Teng, 2020). Indeed, aspects of word form and meaning are likely to be gradually learned incidentally as they are seen over time while reading (e.g., Chen & Truscott, 2010; Horst et al., 1998; Pigada & Schmitt,

2006; Rott, 1999; Saragi et al., 1978; Waring & Takaki, 2003). The manipulation of frequency and context clues in reading studies may be comparatively rare in authentic texts. Nonetheless, materials with rich context clues can prompt comprehensibility and inference—both core conditions in which incidental vocabulary learning transpires from reading. Fluency development and meaning-focused input and output require students to deal with large quantities of reading material and to repeatedly face target words.

Issue 3: Captioned Videos Can Maximize Incidental Vocabulary Learning

Captioned TV has been proposed to accelerate incidental vocabulary learning, such as when discerning form–meaning links for new words (Montero Perez, Peters, Clarebout, et al., 2014; Teng, 2022a). Educators worldwide have generally acknowledged the potential of captioned videos to enhance EFL students' vocabulary development, an important part of English language learning that carries long-term implications for academic progress. Peters, Montero Perez, and their research team have led explorations into ways to facilitate incidental vocabulary learning through captioned videos. I have recently focused on incidental vocabulary learning among EFL students and particularly youth by examining captioned video use in an Asian context. Captions transform videos into storybooks as a stream of written text reinforces visual and audio material. These comprehension aids were originally developed for the deaf or hard of hearing (Danan, 2004). Scholars have contended that the cognitive process involved in watching captioned videos is not as overwhelming as the process for bimodal input: Captioned videos act as a boon for learning (Vanderplank, 2016), particularly for EFL students with limited language skills (Teng, 2021). Studies have further shown that captioned videos enable learners to increase their attention, improve processing, reinforce prior knowledge, and analyze language (Winke et al., 2010). A meta-analysis (Montero Perez et al., 2013) revealed that captioned videos heavily influence students' listening comprehension and vocabulary learning as well.

Captioning, therefore, serves a supporting role by offering people multiple representations of the same information (Teng, 2021). Fortunately, captioned videos are openly available today, with the

internet and multimedia technologies being great allies. Empirical work on vocabulary learning has unearthed several notable themes: (1) the demonstrated effects of captioning conditions on incidental vocabulary learning (Montero Perez, Peters, & Desmet, 2014; Teng, 2022b); (2) the impacts of incorporating advanced organizers to strengthen incidental vocabulary learning from captioned videos (Teng, 2019a, 2022c); (3) frameworks or models related to captioned video adoption in an FL context (Teng, 2021; Vanderplank, 2016); (4) the roles of word-related factors, such as frequency, in incidental vocabulary learning from captioned videos (Majuddin et al., 2021; Teng, 2019b); (5) learner characteristics that may influence incidental vocabulary learning from such videos (Suárez & Gesa, 2019; Teng, 2022a, 2022b; Teng & Mizumoto, 2023); and (6) these videos' effects, including in terms of bilingual subtitling, from an eye-tracking perspective (Montero Perez et al., 2015; Wang & Pellicer-Sánchez, 2022). This research agenda can familiarize scholars and classroom practitioners with how best to apply captioned videos for incidental vocabulary learning. Such videos additionally expose students to meaning-making processes and opportunities to practice language input. These videos can further affect the type and quality of input learners encounter, how they deal with that input, and how they reflect on their output. Accordingly, teachers may leverage captioned videos to bolster students' interest in discovering new words. The rise of digital media, within and beyond educational settings, will likely continue to draw attention to how these videos can expedite incidental vocabulary learning. Future studies should address captioned videos' impacts on this form of learning along with the role of individual differences in learners' cognitive readiness for this instructional strategy.

Issue 4: Students' Motivation Plays a Part in Independent Learning

Learning a word involves both receptive and productive vocabulary knowledge. Receptive knowledge represents one's ability to recognize the form, meaning, and use of a term, whereas productive knowledge enables one to use the term properly (i.e., in form and meaning; Nation, 2001). Acquiring productive vocabulary knowledge is especially difficult because it requires supplemental learning of novel spoken or written output patterns. Students whose L1 writing systems, sounds, or morphological combinations vary from those of the target language are

likely to struggle. Learners may need to know only a few distinctive features of a term's form to understand receptive vocabulary knowledge. At the same time, their grasp of word form must be more precise for productive vocabulary knowledge. Students may find vocabulary learning challenging or the accumulation of vocabulary knowledge slow. These frustrations are normal; only a few words, and a small part of what is required to know a word, can be learned at any given time. The more complex the word-based information is, the more likely learners are to misinterpret a new word. People can sometimes acquire many words receptively through extensive exposure to natural language acquisition settings. By comparison, only a small proportion of words that are acquired receptively become productive. Receptive and productive vocabulary reside on a continuum, such that a person's productive vocabulary knowledge is far less than their receptive vocabulary knowledge. This fact should spark contemplation of how motivation informs receptive and productive vocabulary knowledge acquisition. Teachers should attend to potentially tricky aspects when students are learning a particular word; this way, instructors can strive to motivate their students. For instance, teachers can offer students chances to see or use a word in ways that establish new mental connections around it. Instructors might also devise activities involving the productive use of vocabulary knowledge or provide students with feedback when searching for and evaluating target words during related exercises.

Motivation may be the "neglected heart" of vocabulary teaching and learning. According to self-determination theory (Ryan & Deci, 2017), motivation follows a progression from "controlled to autonomous" (p. 3) and is anchored by amotivation (i.e., lack of motivation) and intrinsic motivation. Intrinsically motivated learners may find vocabulary learning inherently pleasant; amotivation arises when learners have no goals for such learning. Extrinsic motivation lies at the center of the continuum and can be subdivided into external regulation (i.e., learning regulated by external rewards or punishments), introjected regulation (i.e., learning partly controlled by internal feelings or pressure), and identified regulation (i.e., learning resulting from conscious acceptance of personal goals) (Ryan & Deci, 2000). Instructors should orient learners toward intrinsic and identified regulations to foster self-determined vocabulary learning. Students who lean toward external and introjected regulations may cease to devote additional effort to vocabulary learning if they deem

doing so to be unnecessary. Students may also seek information for enrichment when acquiring vocabulary. Learners' motivation or interests can be activated in a few ways. One approach involves referencing timely topics, music, or films to create a relevant class culture. Another option is to encourage self-expression through personalized tasks, idea journals, and speaking circles. Teachers can also engage the class by choosing a vocabulary learning topic that appeals to students' lived experiences. Digital games can promote learner-centeredness and create space for meaningful communication; these conditions should then spur motivation, lessen anxiety, and allow for the integration of vocabulary learning skills. Technology offers a third means of prompting out-of-class language experiences: intriguing digital environments, such as social media platforms, can help students apply prior vocabulary knowledge and express themselves.

In terms of classroom activities, learners may seek knowledge enrichment (e.g., information on derivative affixes) from resources such as dictionaries or textbooks. Students might also find it beneficial to join group activities to develop other kinds of skills. For example, tasks involving semantic maps can drive vocabulary learning because students need to use only existing knowledge. Teachers must furnish some information to guide students through specific vocabulary-learning activities. However, care should be taken not to spoon-feed too much information that may increase learners' cognitive load. Students' efforts to discover and develop meaning enhance their vocabulary learning and their independence from the teacher.

Issue 5: Deeper Mental Processing and Better Retention Guide Incidental Vocabulary Learning

According to Ellis (1994), implicit learning calls for attention to a stimulus but does not involve other conscious operations; repetition has a strong impact. Explicit learning is comparatively more conscious: students propose and test hypotheses while seeking language structures. Explicit learning can also include a search for principles or the application of given rules, thereby promoting cross-modal form–meaning associations. One's quality of mental processing greatly influences this type of learning. Overall, it appears important but difficult to map knowledge of word form to knowledge of word meaning. The partial information learned about a

new word may explain why vocabulary teaching is only moderately effective, in that students usually retain a slight proportion of the words taught in class. This outcome could be further related to the inefficiency of vocabulary teaching. I concur with Nation's (2021) suggestion that vocabulary teaching becomes unproductive for certain reasons. First, instruction cannot possibly cover all high- and mid-frequency words, which are essential for achieving 98% coverage of written text featuring the 9,000 most frequent word families. Second, teachers do not devote a reasonable amount of time to each focal word. The role of vocabulary instruction is therefore limited. Teachers need to recognize that more time should be spent on vocabulary learning. Specifically, language teachers should engage in job-related introspection related to five main tasks (Nation, 2021): (1) planning (e.g., how to ensure that vocabulary learning occurs through the four aforementioned roughly equal strands); (2) organizing (e.g., developing independent, paired, and group activities for listening and reading); (3) training (e.g., helping students familiarize themselves with vocabulary learning strategies); (4) testing (e.g., assessing students' vocabulary size or levels); and (5) teaching (e.g., serving as an information source when students complete vocabulary exercises). Objectively, learners should be granted opportunities to repeat, notice, retrieve, meet, and use new target words in multiple contexts. Potential word attrition should decline as a result.

Schmitt and Schmitt (1995, p. 135) claimed that "the deeper the mental processing used when learning a word, the more likely that a student will remember it." This supposition underscores the role of mental processing in incidental vocabulary learning. The argument may also reflect the so-called "depth of processing hypothesis," which states that mental activities that require more elaborate thought, manipulation, or processing of new words will facilitate students' learning of those words (Craik & Lockhart, 1972, p. 671). Rather than rote repetition, which is based on shallow processes, instructors may need to consider deeper semantic processing—creating a mental image of a word's meaning, judging a word's formality, or grouping a word with conceptually associated terms—to enhance word learning. The involvement load hypothesis (ILH) put forth by Laufer and Hulstijn (2001) offers a richer understanding of the depth of processing hypothesis in incidental vocabulary learning. The ILH consists of one motivational aspect (*need*, which represents the importance of knowing a word to the learner) and

two cognitive/information processing aspects (*search* and *evaluation*). *Search* refers to a learner's attempt to determine the meaning of an unknown word. *Evaluation* is the comparison of that word or meaning with other words and meanings to assess whether it fits a specific context. Incidental vocabulary learning tasks in which these variables are highly present require more depth of processing from students and thus generate more pronounced incidental vocabulary learning outcomes (e.g., Kim, 2008). In a meta-analysis (Yanagisawa & Webb, 2021), the ILH was significantly predictive of vocabulary learning and explained 15.0% and 5.1% of the variance in effect sizes on immediate and delayed posttests, respectively. Yet individual differences, such as in learners' L2 proficiency and cognitive involvement (Kim, 2008) or in their metacognitive regulation awareness of task-induced involvement load (Teng & Zhang, 2021), might be more/less important to consider when implementing pedagogic ILH-based tasks. Interestingly, as long as L2 learners' cognitive and language abilities allow them to complete vocabulary tasks within a given time, then deeper processing of new words—especially the *evaluation* component of ILH-based tasks—will prompt L2 vocabulary acquisition. I particularly enjoyed Yanagisawa and Webb's (2022) meta-analysis, which expanded the general understanding of the ILH. They found that revising the *evaluation* component by differentiating between types of strong evaluation (i.e., sentence-level varied use and composition-level varied use) led to a better model fit. In practice, learners may benefit more from using a set of unknown words together in a text (e.g., a composition) than from using each word in a separate sentence. Using a set of words in a passage may elicit greater processing of how words can be used meaningfully. Yanagisawa and Webb (2022) also created formulas grounded in seven components (*need*, *search*, *evaluation*, sentence-level varied use, composition-level varied use, frequency, and mode) to calculate tasks' effectiveness indices. All other factors being equal, a task with a higher effectiveness index was estimated to produce larger incidental vocabulary learning gains than one with a lower effectiveness index.

Content is an additional factor that encourages more thorough mental processing and better retention for incidental vocabulary learning. This line of research shows that maximizing exposure to and interaction with vocabulary in rich contexts provides suitable conditions for learning unknown vocabulary. Webb's (2008) article is one of the most cited

articles regarding the quality of context and how it affects incidental vocabulary learning. Whereas Webb argued that the number of encounters is integral to form learning, the quality of context is more important for meaning learning. This quality "provides an answer to why gains in knowledge of meaning have varied from word to word… and study to study" (Webb, 2008, p. 238). In effect, the repeated appearance of unknown words in informative contexts may lead to faster and more enduring meaning learning. Gaining knowledge of meaning takes longer in less informative contexts. Initial gains "resulting from meeting an unknown word in one informative context may be reduced in subsequent meetings if those contexts are less informative or misleading" (Webb, 2008, p. 240). Therefore, when designing graded readers for EFL learners with lower proficiency levels, target vocabulary should not be presented in misleading contexts. If target words are seen in uninformative contexts, teachers may need to provide supplementary tasks involving those words to help learners sense their meanings. In classroom teaching, instructors must scan the texts beforehand, consider how the context may shape learning, and decide whether target words are likely or unlikely to be learned.

The final factor that might influence learners' processing of language input for retaining new words is frequency. There is no "magic number" of times a word needs to be read (or heard) before it is learned. The number of encounters vital for incidental vocabulary learning can vary—6, 8, 10, 12, or even more than 20 encounters may be required. A meta-analysis on repetition (Uchihara et al., 2019) documented a medium effect ($r = .34$) of repetition on incidental vocabulary learning. Moderator analyses revealed variations in the size of repetition effects across studies. Sources of these discrepancies included learner variables (age and vocabulary knowledge), treatment variables (spaced learning, visual support, engagement, and range in the number of encounters), and methodological differences (nonword use, forewarning of an upcoming comprehension test, and vocabulary test format). More encounters with words in context increase the likelihood of new words being learned. However, a threshold of encounters that ensures incidental vocabulary learning has yet to be identified. A larger vocabulary size or better proficiency level can positively affect incidental vocabulary learning as well: some students have greater lexical coverage of input due to stronger vocabulary knowledge or a greater proficiency level. For FL learners who

need support in language learning, more repeated encounters with new words can sustain engagement as they process input for meaning.

Issue 6: Various Input Sources Should Be Compared to Maximize Incidental Vocabulary Learning in Practice

Vocabulary learning can occur through listening, reading, and reading while listening. The conditions favoring learning through input include contextual richness, spacing of repetitions, the occurrence of the same words in different contexts, and the need to build a link between form recognition and meaning retrieval. Much research has addressed reading, whereas little has concerned listening, possibly due to the challenge of learning new words without seeing them while listening. Van Zeeland and Schmitt (2013) and Vidal (2003) critically examined incidental vocabulary learning from listening. Jin and Webb (2020) looked at this type of learning by listening to how teachers talk, which served as a source of input for incidental vocabulary learning gains. Frequency, word elaboration, predictability from word forms and parts, and L1 translation each explained the variance in students' gains.

Other studies have compared incidental vocabulary learning in several scenarios: listening, reading, and reading while listening (Brown et al., 2008; Webb & Chang, 2020); reading and listening (Vidal, 2011); reading and reading while listening (Teng, 2018; Webb & Chang, 2012); and listening, reading, and viewing a TV program (Feng & Webb, 2020). Reading facilitates vocabulary learning more than listening, and reading while listening is more helpful (vs. reading) for vocabulary learning. Even so, these outcomes are not conclusive. Many factors, such as frequency, may affect vocabulary learning from reading while listening (Webb & Chang, 2015) and viewing videos (Peters & Webb, 2018). Reading, listening, reading while listening, and even viewing should be considered parts of a well-balanced language course. More research is needed to understand the potential of incidental vocabulary learning. Relatedly, individual differences (e.g., learners' vocabulary knowledge, English proficiency, aptitude, and working memory) and word-related factors (e.g., word occurrence frequency, context clues, and cognates) should be taken into account to clarify aids and impediments to incidental vocabulary learning from diverse input sources (Teng & Uchihara, in press).

Issue 7: Vocabulary Learning Strategies Need to Be Revitalized

There has been a recent emphasis on learner enablement, in which teachers acknowledge students' individual differences. Doing so is meant to give students a voice in the curriculum and teach them how to learn independently. With regard to vocabulary learning, teachers should create a need for new words if students are expected to learn them. Raising students' awareness of vocabulary learning strategies is one example. Instructors should not be overly prescriptive when describing these tactics. Because students may have different learning styles and study preferences, they should be introduced to an array of techniques. Students can then decide which ones they like. Academic work on vocabulary learning strategies, referring to a spectrum of approaches contributing to the ongoing process of vocabulary acquisition, is grounded in language learning research. Two landmark studies on vocabulary learning strategies have received substantial attention. The first, by Gu and Johnson (1996), distinguished metacognitive regulation and cognitive strategies. The former consists of selective attention and self-initiation; the latter includes guessing, dictionary use, note-taking, rehearsal, encoding, and activation. The authors identified a relationship between vocabulary learning tactics and vocabulary size. Strategies such as semantic encoding, word list learning, and contextual encoding were significantly related to vocabulary size. EFL learners were then grouped into five types based on their vocabulary learning strategy patterns. Two groups constituted the majority and differed in their use of encoding techniques. One small group of highly successful learners (labeled "readers") applied context-based strategies. Another group of successful learners (labeled "active strategy users") actively used most strategies more often than others. The remaining group, "passive strategy users," moderately adopted visual repetition; they used all other strategies far less than other learners. Schmitt (1997) conducted a second pioneering study by classifying vocabulary learning based on discovery strategies or consolidation strategies. Discovery strategies involve determining the meaning of new and unfamiliar words. Schmitt (1997) subdivided this category into determination strategies (e.g., either guessing the meaning of a new word from its form/context or referring to resources such as dictionaries) and social strategies (i.e., asking others for the meaning of a new word). Consolidation strategies focus on recalling introduced words and were subdivided into memory (i.e., learning vocabulary via

manipulative mental processing), cognitive (e.g., repetition or using mechanical means, such as word lists and vocabulary notebooks), metacognitive (i.e., self-regulating one's own vocabulary learning), and social strategies (e.g., learning or practicing vocabulary with peers).

Early research on vocabulary learning strategies correlated them with vocabulary knowledge. Zhang and Lu (2015) administered a battery of vocabulary tests as well as a questionnaire on vocabulary learning techniques. The survey covered five factors: form (i.e., mnemonic strategies based on studying the form of vocabulary); association (i.e., mnemonic strategies based on associating words with semantically or morphologically related ones); repetition (i.e., cognitive strategies based on repetition); word lists (i.e., cognitive strategies based on word lists); and pictures/images (i.e., mnemonic strategies based on associating the vocabulary with images or situations). Both form and association strategies positively predicted vocabulary size and depth, whereas word list strategies had a negative effect. Another thread of work centers on the effectiveness of training students through vocabulary learning strategies. Focusing on Japanese EFL students, Mizumoto and Takeuchi (2009) examined the role of strategy instruction. A 10-week teaching period addressed metacognitive and cognitive approaches to vocabulary learning. Training in vocabulary learning strategies changed students' chosen techniques and improved the frequency of strategy use. Learners who initially rarely applied strategies benefited most from the training: they proceeded to choose tactics that fit their vocabulary learning needs after training. Scholars have also examined self-regulation in vocabulary learning. For example, Tseng et al. (2006) developed a scale including five "volition control strategies," namely commitment, metacognition, satiation, emotion, and environmental control.

Overall, vocabulary learning strategies merit special attention in vocabulary instruction. Naturally acquiring vocabulary in context is accompanied by unique affordances and constraints in input frequency, modality, authenticity, output demands, and vocabulary learning strategies (Gu, 2020). The Matthew effect deserves scrutiny in incidental vocabulary learning as well: students who can strategically deploy vocabulary learning strategies may acquire more vocabulary than their lower-level counterparts. A highly sophisticated view of vocabulary thus remains needed. For instance, framing vocabulary learning as a dynamic form of competence that is situated in authentic language use calls for

strikingly different treatment than the static recognition of form–meaning pairs. More should also be done "from a learner perspective to fully appreciate the skill, will, and co-construction of strategies and self- and co-regulation of vocabulary learning" (Gu, 2020, p. 280). Researchers should focus on students' strategic learning of receptive and productive knowledge of single words as well as multiword expression.

Implications and Concluding Remarks

The above seven issues are crucial to a thorough understanding of incidental vocabulary learning in practice. While intentional vocabulary learning can encourage immediate retention of lexical items, incidental vocabulary learning has become more important for vocabulary instruction. The extent to which incidental vocabulary learning is possible depends on several factors: information provided by, and the percentage of known words in, the co-text; and context, target word salience, repetition, vocabulary learning strategies, depth of processing, and learning motivation as discussed above. Incidental vocabulary learning involves certain degrees of syntactic and lexical knowledge on which learners rely heavily for comprehension. This relationship must be taken into account for vocabulary acquisition, particularly in the incidental learning domain. Vocabulary teaching can be supplemented with instructional support to maximize word learning and retention; intentional and incidental word learning are complementary. Therefore, class time may be better spent on activities that direct students' attention to the target vocabulary. Meaning-focused activities such as reading, listening, reading while listening, viewing, and viewing with captions (whether for interest, information, or enjoyment) will contribute to incidental word learning. Extensive reading, listening, and viewing have the potential to provide students with rich input and expand incidental vocabulary learning.

Among pedagogical implications, frequency of occurences has received the bulk of attention in relation to incidental vocabulary learning. This frequency may indeed be important for short-term retention when dealing with single texts. Students can raise their awareness of a word's frequency by keeping a tally of every time they hear or see it within a certain period (e.g., a day or a week). Students might also keep track of words that seem to collocate with the new word noticeably often. Other factors, such as the use of words in speech or

writing, are similarly vital for long-term retention. Teachers may need to consider the type of text that best aligns with students' interests along with the quality of contextual hints that enable subconscious vocabulary learning. Knowing a word goes beyond knowing its meaning. Teachers may need to provide instruction about a word's form (spelling and pronunciation), its grammatical characteristics, its root form and derivatives, its frequency, its relationships to other semantic concepts, the words it commonly accompanies, and its stylistic qualities. To do so, teachers should choose authentic texts with informative context clues that suit students' proficiency levels and should develop tasks in which learners can focus on the word level (syntactic level) and global text comprehension. Such exercises will boost comprehension, syntactic lexical knowledge, and presumably one's ability to use newly acquired vocabulary in real-world speech. Material developers also need to contemplate how materials' context may affect vocabulary learning. If the context surrounding vocabulary does not assist readers in correctly inferring words' meanings, then multimodal glosses should be meaningfully incorporated to help learners discern a word. Teachers may also need to combine input sources. Multimodal texts, including video captioning, is one input source that enhances comprehension and offers students additional support in associating a lexical item with its meaning (Teng, 2021). Finally, teachers play key roles in sharing effective learning strategies and cultivating classroom conditions that inspire students to engage in incidental learning.

For classroom practitioners, an effective vocabulary course would involve a balance of the four strands of meaning-focused input, meaning-focused output, language-focused learning, and fluency development. All these strands address the same content. The design of materials should meet learners' needs and vocabulary levels while being somewhat familiar. Helping students take control of their own learning is a pillar of incidental vocabulary development. Instructors should be involved in planning, organizing, training, testing, and monitoring vocabulary teaching and learning. For vocabulary researchers, more studies should be done to stress the value of appealing to learners through different forms of meaning-focused input. The individual differences in vocabulary learning gains that follow exposure to meaning-focused input also deserve a closer look. With more nuanced avenues to explore, the future is bright for understanding incidental vocabulary learning in practice.

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