Synesthesia's Magic: Tell Me About the Personality of Your Word

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Abstract

What does it mean to know a friend? What does it mean to know a lexical item? And what does the neural condition of synesthesia have to do with the interplay between the two? This paper suggests that drawing a connection between these three subjects—friends, lexical items, and synesthesia—can robustly improve English language learners' cognitive ability to successfully encode, learn, and recall a wide range of lexical items—from single word terms to phrasal verbs and idioms. Drawing on work done in synesthesia (Cytowic & Eagleman, 2011; Simner et al., 2006), and research done on personalizing learned material, making emotional connections with it, and developing a sense of ownership toward it (Medina, 2009; Ratey, 2001; Willis, 2006), this paper introduces the unique activity of writing word-personality character sketches and shows how they help English language learners to personalize and internalize the lexical items, enabling them to use the vocabulary terms at a high level of sophistication and ease.

Introduction

What does it mean to know a friend? What does it mean to know a word? And what does synesthesia have to do with the interplay between the two? I would like to suggest that these three subjects—friends, words, and synesthesia—can robustly improve English language learners' (ELLs') ability to successfully encode, learn, and recall a wide range of English lexical items.

Lightbown and Spada (2006) ask the following questions about what it means to know a word in a second language:

> What does it mean to know a word? Grasp the general meaning in a familiar context? Provide a definition on a translation equivalent? Identify its component parts or etymology? Use the word to complete a sentence or to create a new sentence? Use it metaphorically? (p.100)

The above, to be sure, is a good start, but doesn't truly knowing a word, phase, or idiom entail a great deal more? I ask this crucial question, because I believe that when students genuinely know a word, they will remember it. I think we can add to Lightbown and Spada's list by including the knowledge of synonyms, antonyms, a word's register, the best location of its use, with whom to use it; in addition, we ought to be familiar with its collocations, parts of speech, know if it has a positive, negative, or neutral feel—verbpathy[1]—, and perhaps most important, shouldn't we know how to "play" with the word? And this is where the notion of becoming friends with words settles in (Randolph, 2009).

How do we truly know a friend? I think first we start by perceiving a person. Perhaps we see her walking into a coffee shop. The following day we recognize her, and we may even say hello. After a few brief meetings, we may ask to meet and chat. During the conversation, we begin to use new information in our conversation that we learned from our new acquaintance. We might ask certain questions that seem to open some doors and close others, but nonetheless, we are becoming familiar with the person and beginning

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[1] Verbpathy is a term I coined which means "word-feeling" (verb→word; pathy→feeling). Knowing the verbpathy of a lexical item means understanding its positive, negative, or neutral feel. For example, the verbpathy of *bliss* is positive; *depression* is negative.

to establish a friendship. Now we have come to understand our new friend. Once the friendship deepens by using questions and conversations as our means of communication, we get to know each other. This knowing then facilitates a sense of feeling, perhaps intuitively, how each other is on days we meet for coffee or dinner. This deeper understanding through feeling evolves into a love for our friend. And ultimately, we own this friendship through being friends and being responsible for each other.

This evolution of perceiving, meeting, and establishing a friendship with a friend is not unlike how we experience "getting to know" a word, a phase, or idiom (Randolph, 2009). First you perceive it on paper or hear it, and after that you may recognize it at a later time. Next, you start to use it and understand it. Through the course of using it, (and making mistakes occasionally), you learn it and get to know it. Then, you develop a certain intuitive feeling toward the word, you may even love it. And ultimately, you own the word—it becomes yours like the friend.

An Explanation of Synesthesia

Enter synesthesia. What does this have to do with vocabulary acquisition and friendship? Before we attempt to answer this question, let's take a look at what synesthesia is, who has it, how many kinds there are, and what the benefits appear to be.

We can glean a good bit of insight into its meaning by examining the word *synesthesia*. The prefix "syn" means "together," or "with" and the root "aisthaesis" means "feeling," or "sensation." Thus, synesthesia means to "sense or feel together." But what specifically is synesthesia? The answer is fascinating. Synesthesia is a distinct but not uncommon neurological condition where senses react differently than their normal, defined function. According to Cytowic and Eagleman (2011), two experts in neuroscience, "Synesthesia is a hereditary condition in which a triggering stimulus evokes the automatic, involuntary, affect-laden, and conscious perception of a

physical or conceptual property that differs from that of the trigger" (p. 112). For example, the author of this paper "sees temperatures;" other synesthetes "see smells," "taste colors," "smell tastes," or "attribute personalities to colors" (Day, 2013). The famous synesthete, Franz Liszt, is reported to have told his orchestra on one occasion, "Please gentlemen, a little bit bluer if you please. This key demands it" (Seaberg, 2011, p. 24).

There appear to be over 80 different kinds of synesthesia, two in particular—personality→number synesthesia and personality→grapheme synesthesia—are the inspiration for this paper. (I will address these two below.) Some types of synesthesia are more common than others (e.g., graphemes→colors, musical notes→colors), and one common trait is that a synesthete will have more than one kind of synesthesia (Cytowic & Eagleman, 2011).

The first recorded case of synesthesia, according to Hochel and Milan (2008), was in 1812. However, Cytowic and Eagleman (2011) have evidence that the great mathematician and philosopher, Pythagoras, had the aforementioned personality→number synesthesia. Thus, their research shows it could date all the way back to 500 B.C.E. For instance, according to Brumbaugh, Pythagoras perceived detailed personality traits for whole numbers. That is, "each number had its own personality—masculine or feminine, perfect or incomplete, beautiful or ugly" (as cited in Cytowic & Eagleman, 2011, p. 82).

What is the percentage of individuals who have synesthesia? According to Simner et al. (2006), one out of 23 people have some type of synesthesia. This ratio is repeatedly confirmed in my own classrooms. I typically have 15 to 18 students in my classes, and I usually have anywhere from one to two students who claim to have one form or another of synesthesia. But perhaps what is more intriguing is that the number would be higher if I included the students' childhood. Students will frequently (two-three per class) tell me that they used to have some kind of synesthesia when they were in

elementary or junior high school. They often claim that they started to lose the synesthetic experience in high school. This brings us to the research of Maurer and Mondloch.

Maurer and Mondloch's (2006) research, based on the work of Maurer and Maurer (1988), claims that as newborn babies, we all have synesthesia. They argue that because the newborn's brain has not gone through the process of neural pruning, it has many more cross-wiring connections, so really newborns have one sense (Mondloch & Maurer, 2004). According to their research, a baby can smell, hear, and see its mother's voice. When my students tell me that they "used to have" synesthesia or it "used to be" stronger, they are more than likely referring to a time before their brains went through the neural pruning.

Two questions arise from the above research: (1) Have the minds of synesthetes not undergone the natural neural pruning and thus have more neural connections? and (2) Does this mean everyone has synesthetic potential?

The answer to the latter question has direct relation to the main activity of this paper, described below. The German-American psychologist, Wolfgang Köhler, conducted an experiment focusing on shapes' relationship to sounds. He found that a significant number of people matched *takete* with a star-shaped object and *baluba* with a soft, round, cloud-shaped one (Ramachandran & Hubbard, 2001). Ramachandran and Hubbard conducted a similar experiment but used the terms *kiki* and *bouba* (see Figure 1). An overwhelming 95% of the respondents again matched *kiki* with the star shape and *bouba* with the soft, cloud-shaped form. I conducted the experiment on my daughter when she was 2 years and 9 months, and she also agreed that the term *kiki* was "sharp" and *bouba* "soft." What this shows us is that perhaps we do have the foundational mapping for synesthesia, and it is all a matter of teasing it out and relearning this cross-wiring of senses in the brain.
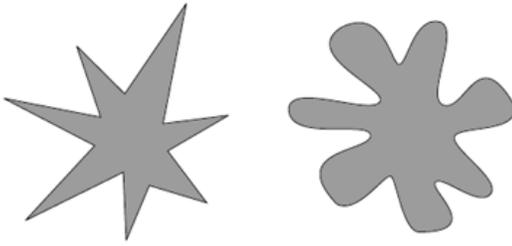
Figure 1. Shapes used in Ramachandran and Hubbard's (2001) experiment. Retrieved from http://www.synesthesiatest.org

What, then, if any, are the benefits of synesthesia? Cytowic and Eagleman (2011) have shown that it helps develop strong memory skills. "When asked what good synesthesia does, a common response is, 'It helps you remember'" (p. 81). Ward (2008) has also gathered data showing that synesthesia strengthens memory, particularly dealing with dates and appointments. Ratey (2001) of the Harvard Medical School offers a valuable insight into why synesthetes are blessed with a better capacity to remember. His explanation focuses on the simple truth that synesthetes use more neural connections; these help reinforce each other, and consequently synesthetes use more of the brain.

In this sense, if there are more connections of say, color, taste, and smell at the moment of encoding, then the synesthetic experience is not far removed from normal multisensory experiences of learning (Randolph, 2014a). That is, the more elements used in learning, for example, a vocabulary item, the stronger the neural connections of memory will be forged.

Background

As a lecturer in English lexical items and their usage, I am continually looking for ways to increase my students' retention of vocabulary. I am developing a teaching method called *The Head-to-Toe Method of Associations for Vocabulary Acquisition*. A large part

of that method rests on creating activities to help my ELLs acquire lexical items.

The two kinds of synesthesia that intrigued me were number→personality and grapheme→personality synesthesia; the former, you might recall, is the one Pythagoras had. One synesthete interviewed by Cytowic and Eagleman (2011) reported that the number 4 was "very yellow, deeper than A; female, feminine, playful but no flirtations; sisterly;" the number 1 was "white; male; quiet character; youthful appearance but serious in character" (p. 42). Mächler (2009), a synesthete and scholar of synesthesia, explained that as a child, he perceived 4 and 6 as characters who were destined to marry each other. "These personifications were elicited involuntarily and were not created actively by myself. It supported me in dealing with numbers" (Mächler, 2009, p. 12).

With the above research in mind, I asked the following question: In order to help my students retain vocabulary, and given the strong possibility that we all have either an opaque or transparent manifestation of synesthesia, what if I developed an activity that "personified" the lexical items we learn in class, gave them their own life and personal characteristics—physical and psychological—, and wrote character sketches about them to bring the items to life (Randolph, 2014b)?

It was soon after posing this question that I did an experiment in one of my advanced writing classes by asking the students to give personal and physical characteristics to the terms we had studied thus far in the semester. The results were impressive. I first asked the students to consider the word *meticulous* and list as many personal and physical characteristics of it as if it were a person. Within a three-minute period, they came up with the following list of attributes for meticulous.

(1) He is a 37-year-old man; (2) serious; (3) well dressed; (4) British; (5) very silent; (6) uses a cane to walk; (7) always hits the

books at the library; (8) lives in the library; (9) is a bachelor; (10) wants a wife; (11) slowly but surely responds to people's requests; (12) has only a few (carefully picked) friends; (13) always carries a small mirror; (14) is traditional; (15) wears a tie; (16) is fashionable; (17) is rather tall; and (18) is thin. (Randolph, 2014b, p. 2)

Based on the quick response and enthusiasm the students showed during the activity, I set up the procedure (detailed below) for my advanced writing class that met five days a week for two hours a day. Since that particular lesson, I have included this activity as a key component in my *Head-to-Toe Method of Associations for Vocabulary Acquisition*. The character sketch and its variations are seen in a very positive light by my students. In different survey results (see below), the students commented on the fact that they like the feeling of befriending the words and really getting to know them.

Objectives of the Character Sketches

At the onset of this paper, I asked the reader what it means to know a lexical item. The primary objective of using the synesthetic-based idea of word-personality as an underpinning for vocabulary retention is based on three significant elements underscored in what neuroscience tells us are pivotal in learning: emotion, personalizing information, and ownership. That is, if we can somehow incorporate emotional content and elicit emotional responses from our students (Medina, 2009), personalize the information so that it has meaning in the learners' minds (Willis, 2006), and help them own the material in question (Jensen, 2008; Sousa, 2011), then our English language learners will be better equipped to truly learn and internalize the information—in this case, vocabulary items.

I think that this activity also gets the students to freely *play* with the lexical items, make them as real as possible, and *befriend* the vocabulary terms and *know* them on a whole different and

intellectually profound level. The once distant and sometimes abstract terms actually become familiar in the minds and intuitions of the students. This activity is the great equalizer that takes abstractions and makes them concrete and tangible.

And lastly, the central goal is to get the students to retain these lexical items for their academic and professional careers, and for their personal growth as holistic learners of the English language.

The Procedure and Implementation

It is important to underscore one point before laying out the procedure for this activity. It should be noted that this is not an activity that I use to introduce lexical items, but rather it is used to reinforce a deeper intuitive feeling and understanding of the terms, and it is used to help make the learners feel more confident and comfortable. This is by no means to say that this activity cannot be used for lower to intermediate levels of instruction—it can.

As above, this is an activity I use to reinforce my students' understanding after they have gone through the various parts of the *Head-to-Toe Method of Associations for Vocabulary Acquisition*. For instance, they will have studied: (1) the definitions; (2) the parts of speech; (3) the verbpathy; (4) register; (5) examples; (6) emotional connections; and (7) sensory components. After understanding the terms at a relatively complex level, I use this character sketch activity.

Before moving on to the breakdown of the procedure, I would like to say a word or two about how instructors can best integrate this character sketch/word-personality activity in their classes. Overall, the activity is very flexible, and I think it can be used in all of the major skill-based classes: speaking and listening, grammar, reading and writing. That is, the activity can be modified for each skill: for speaking and listening, these character sketches can be presented versus written; in a grammar class, teachers can have students work with a specific grammar point and dovetail it with the vocabulary

terms. For reading and writing classes, the procedure below will be a natural fit.

If instructors teach vocabulary in each of these skill courses, they can recycle the lexical items by using the word-personality activity. If, on the other hand, their time is constrained, and they do not have a great deal of time to devote to teaching vocabulary, then I suggest instructors use some of the ideas listed below.

Word Warm Ups:

Try to devote a mere five to ten minutes of each class to teaching one or two new vocabulary items. These terms can then be gathered and used for the character sketch activity.

Recycling Terms Through Brainstorming:

Another quick and relatively easy activity is to simply have a brainstorm session in which the instructor helps elicit a number of previously learned terms from the students' past English language classes. These terms can then be used for the activity.

Online Adjective Hunt:

It is also fun to have students search for various adjectives online and then bring them to class. Some adjectives might work better than others for these character sketches. The instructor will know which ones to select for the activity.

On Campus Interviews:

A great way to get students to mingle with native speakers and acquire new lexical terms is to have them interview either domestic students or faculty and ask them what, in their opinion, are the "top ten English lexical items" that any and all ELLs should know. They will gather quite an eclectic blend depending on the demographics of the campus. These terms can then be used for the word-personality activity.

In the final analysis, this play with words can be used in any number of classes and in any kind of skill-based class. Let us now turn to the procedure I use in my writing classes at my current institution.

DAY ONE: Pair Up and Review
First, I like to have the students pair up and review the lexical terms of the week or a sampling of words from previous weeks. Here, I have them quiz each other on the definitions, parts of speech, and give original example sentences.

Word Background: Personal History and Characteristics
Next, the same pairs ask each other what they think the personal history or characteristics of each term are. This part of the activity is first done as a class, but then I allow the students to do the set-up in pairs. Table 1 is an example of what we use in class to elicit the ideas for the character sketches.

Table 1
Sample Backgrounds and Characteristics for the Lexical Items

Personal Background				Personal Characteristics	
Residence	Career	Hobbies	Education	Physical	Personality
• country • big city; small town • house; apartment • pets; no pets	• kind of job • position • rank • experienced; no experience	• film • music • sports • cooking	• high school • college • grad school • post doc.	• hair color •complexion • height; weight • young; old	•emotional; rational • extrovert; introvert • loquacious; reticent • optimistic; pessimistic

Note: I go over any of the above terms that the students may not know before continuing with the activity.

Other possible categories for this activity may include marital status, religion, political affiliation, favorite food, drink, restaurants, and travel interests.

Choosing a Favorite Lexical Item and Creating an Oral Character Sketch

The third step focuses on choosing one lexical item from the ones reviewed, creating, and informally presenting an *oral character sketch*. The main reason I have the students do an oral character sketch before a written one rests on the notion that offering an oral description of a term "acts as a 'creative-midwife' in that speaking helps elicit ideas in the 'birthing' process" (Randolph, 2014b, p. 2).

That is, when students "talk out" their character sketch first, they are more likely to "just talk" and not be overly critical. This step gets them to produce many human characteristics of the lexical terms and be highly creative. In addition, this part of the activity inspires the students to start thinking of the terms as living individuals, and more important, it gets them to look at the terms as friends or at least acquaintances.

An effective homework assignment to summarize the day's activity is to have the students write down short phrases or sentences about their selected words, or have the students simply continue to think about their lexical items as friends and make as many mental notes as possible in preparation for the next day's writing activity.

DAY TWO: Writing the Character Sketches

I spend the first part of the second day on a brief *review and elaboration session*. I have the students match up with a new partner and retell their previous day's oral character sketch. This *review and elaboration session* allows the students to present their word-descriptions with a fresh mind-set, and it gives them the opportunity to tell them to a fresh set of ears. As a consequence, they will be able to elaborate on their characters and answer any questions from their

partners. As a general practice, I always like my students to talk about their writing topics before actually writing about them. This helps them organize their ideas, feel more comfortable about and confident in the topic, and gain new insights into their own ideas.

After a 10-12 minute review and elaboration session, the students are prepared to write their word-personality character sketches. Throughout the years, I have found it more beneficial for the students to write these and other assignments in class as opposed to writing them at home. Not all writing can be done during class time, for example, lengthy research papers and long, involved essays. But, when possible, it's best to have the students write during a focused time limit in class. The quality, coherence, and flow of the writing is often better. I attribute this to a productive, concentrative energy in class versus a desire to multitask at home with digital devices and other diversions.

The homework for the second day is to edit, develop, check over spelling, and add definition-related details to the word-descriptions. For instance, if the character sketch for the word-personality is Ms. Juxtapose, then I ask the students to highlight her personality with synonyms or circumstances that both bring her character to life and show her definition in a clear and intriguing light. An example would be "Ms. Juxtapose often spends her mornings comparing different kinds of coffee flavors. She likes to contrast the flavors in order to find out which ones are more to her liking." These two sentences use the terms *compare* and *contrast*, which are related to *juxtapose*. We also get an insight into her character and her love for juxtaposing coffee flavors.

DAY THREE: Reading Aloud and Revising

The final stage of this project requires the students to make groups of three and take turns reading their character sketches. The two students who are listening are asked to pay close attention and write down one strong point of the description and one point that

needs development. These notes and suggestions are then given to the author to read and incorporate in his or her final draft.

The final drafts can either be assigned as homework, or they can be done in class. The final draft is submitted together with the first draft and the student suggestions. I like to review the final draft and see how much the students incorporate their classmates' suggestions, and also I like to see the development from the first to the last draft.

I try to make it a point before returning the first work to read a selection of the sketches to the class; it helps the students develop confidence in their own work (Koch, 1978), and they see the activity as a chance to see the progress and development in themselves as writers (Randolph, 2012). Moreover, this culminating step allows the students to hear and review the vocabulary items in an interesting and humanistic setting.

A Note on the Kinds of Character Sketches

There are two types of formats I use for the activity (also see the appendix for other variations). The first kind of character sketch is a basic paragraph in which the students are required to simply describe the word, phrase, or idiom as best they can with descriptions focusing on the physical characteristics and the personality traits.

The second type of character sketch is a bit more detailed and developed. The first paragraph demonstrates the physical makeup and personality of the item. The second paragraph details a special moment, scene, or situation that epitomizes the personality of the word. In short, the second kind is flash fiction (i.e., an extremely brief fictional account of something in 300 to 1,000 words).

In both types of sketches, however, the students are asked to use words and ideas that help elicit the basic definition of the term in question. I also stress that they use other lexical items we've studied. This helps review the previously learned terms, and it also nurtures a better understanding of how to use them.

The rubric that I use is relatively simple and straightforward (see Table 2). I stress the creative descriptions of the physical characteristics and personality traits, the use of previously learned lexical items, and the implementation of classmate ideas and feedback. I also emphasize the differences between the first and second drafts so that the students become aware of the importance of the writing process.

Table 2

Example Rubric for Grading the Basic Character Sketch

	Great	Good	Needs Work
Description of physical characteristics	5	3	1
Description of personality traits	5	3	1
Use of previously learned vocabulary	5	3	1
Use of classmates' suggestions	5	3	1
Improvement between drafts	5	3	1
Comments:			Total: __ / 25

Results from a Student Survey

In the spring and fall semesters of 2014, I administered a short, two-part survey on "personalizing words" in six ELL courses: one advanced speech course, three advanced writing courses, and two high advanced writing courses (bridge classes) for international students. (n=51)

The survey included the following two parts:

(1) Have "word-personality" activities (characters sketches, poems, dramas) helped you remember the words, phrases, idioms we studied?

Yes   No
Why?   Why not?

(2) If you answered "Yes," then continue to the next part. Please write down the things that you feel "word-personality" activities have helped you with.

The six classes all responded with favorable opinions towards the word-personality activities. I would like to point out that I asked the students to answer as honestly as possible; that is, if they truly felt that the activities did not help, then I asked them to feel free to answer accordingly. In addition, all surveys were answered in an anonymous fashion—with no names placed on the surveys.

All of the students in the advanced speech class rated the activities as favorable and the respondents claimed the activities helped them learn the lexical items. The advanced writing class from the spring term answered with 83.3% in favor. Only 16.7% claimed the activities did not help.

The two advanced writing classes from the fall term, however, both answered with 100% in the affirmative. That is, all students felt the activities developed their retention of the vocabulary. What is interesting is that the majority of the high advanced university bridge classes also answered in favor of the activities. Both the spring and fall groups, comprised predominantly of graduate students, answered with a 90.9% approval and only a 9.1% disapproval.

As above, all six classes found the word-personality activities to be very beneficial. Perhaps their perspective could be summed up in the words of one Iraqi graduate student, "How do you expect us to ever forget these words now that we have become friends with them and made them into people?" (Randolph, 2015, para. 17).

The following is a small sampling of answers from the second part of the survey:

(1) Can express my feelings in English. I trust my writing skills now.

(2) Helps because I have to feel the word.

(3) These activities they make many connections with the words.

 (4) Words are easy to remember when I personalize words.

(5) Makes it easier, smoother to get impression of words; it gave me a lot of images when I'm trying to remember the words.

(6) Makes me feel the word deeper.

(7) Yes, it helps because I create stories for that word/idiom.

(8) Because it makes a connection with my life.

The Benefits

Before briefly reviewing the benefits of these character sketches inspired by the magic of synesthesia, I'd like to revisit the inspiring quote from my Iraqi graduate student: "How do you expect us to ever forget these words now that we have become friends with them and made them into people?" Based on this statement, and the responses in the previous section, I believe it is clear that the students perceive this activity as a significant aid in helping them learn and internalize the lexical items they study.

The ideas of personalizing the material, making emotional connections to it, and achieving a sense of ownership are three essential elements discussed at length by both neuroscientists (Medina, 2009; Willis, 2006) and educators (Jensen, 2008; Walker Tileston, 2004) who claim these help learners truly acquire the material. As we have explored in this paper, the above three components are at the foundation of using character sketches to personalize words and internalize their function and usage. This activity better prepares our students for their academic career and life in their English-speaking host cultures.

Concluding Remarks

If, as Maurer and Maurer (1988) argue, we all come from a synesthetic past, and if personalizing material is a sure way to learn it (Medina, 2009), and if both synesthesia-like experiences and personalizing lexical items generate stronger memories (Cytowic & Eagleman, 2011; Jensen, 2008; Leatherdale, 2013), then I believe that there is a certain magic about synesthesia, and I believe that having our students tell us about the personality of a word is a fail-safe way to teach vocabulary. I think the best way to help our English language learners is to make their learning process fresh, new, and exciting; and, above all, we must somehow light a fire that ignites a sense of self-eagerness in learning. What better way to do this than have them befriend the English language through an interest in and a love for words.

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Appendix

Possible variations of the character sketches:

(A) Different poetic forms;

(B) Short skits/dramas;

(C) Presentations: Monologues depicting the lexical items;

(D) Personal letters describing word-characters;

(E) Written dialogs between word-characters;

(F) Song lyrics;

(G) News, presenting stories on the life or situation of word-characters.

For examples of (B) and (E) in the Appendix, go to www.catesolnews.org/2014/05/becoming-personality-word/