

Is Absolute Pitch Used Outside of Music?

Tyler Flock

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By Tyler Flock

Abstract

This persuasive essay explores the concept of Absolute (Perfect) Pitch (AP), the rare ability to identify and produce a particular pitch without a reference pitch. While typically associated with music, research suggests AP may have evolved from speech, with environmental and genetic factors contributing to its development. This piece asks the question “Is absolute pitch used outside of music?” by referencing and summarizing peer-reviewed sources by well-regarded experts to formulate opinions. The theory of AP evolving from speech is supported by studies on native speakers of tonal languages, who exhibit a higher percentage of AP users and show connections between AP and enlarged temporal lobes involved in speech processing. It highlights research that suggests that non-AP users also employ an implicit form of AP for tasks involving the perception of pitch class and height. Results from multiple studies imply that absolute pitch is indeed used outside of music and mostly aids in the perception and interpretation of daily conversation, although its full scope remains a scientific mystery.

Absolute Pitch (perfect pitch) as we know is the rare ability to name or produce a note of a particular pitch in the absence of a reference pitch. In her article, “The Puzzle of Absolute Pitch,” Diana Deutsch states that the Absolute Pitch (AP) ability is estimated to occur in fewer than 1 out of every 10,000 people in our population. To develop AP, research shows that there are environmental and genetic components involved. Typically, the only context where one would hear AP being discussed is in a musical environment, as it is not nearly as well-known as it could be. But after all, the ability only really seems both feasible and useful to a tiny population of musicians, right? According to Deutsch, AP is theorized to be an evolved feature of speech. It has even been argued that “AP is one of the cleanest examples of a human cognitive ability that arises from the interaction of genetic factors and environmental input during development” (Zatorre 2003, quoted in Moulton 2014, 517). These two statements open the gateway to the possibility of AP being useful to everyone and having more uses outside of just music, such as helping us as humans interpret the different meanings in our conversations.

Seeing that an understanding of the AP ability has been established, it is now possible to explore the more complex components and present the two different types of AP: active, assigning an auditory pitch to a given pitch name, and passive, assigning a pitch name to a given auditory pitch (Dohn, et al. 2014, 359). Research taken from Deutsch’s article supports the idea that as non-AP users, we also use an implicit

form of AP (not like the one tonal language speakers use) to do different tasks. (A tonal language is one where the same word or phrase can have two different meanings based on the tone and pitch when speaking it.) Research by Terhardt and Seewann (1983, 2), as paraphrased by Deutsch (2002), found that “musicians who lacked absolute pitch were nevertheless able to judge to some extent whether or not a passage was played in the correct key” (202). Deutsch also observed that when making judgments of the tritone paradox (an auditory illusion where a set of notes is played in sequential order and is heard in either ascending or descending order by different people), most people will either place tones in a certain region of the pitch-class circle as higher and vice versa for the lower region. “Listeners’ judgments reflect a systematic relationship between pitch class and perceived height” (Deutsch 2002, 202), meaning that when making these judgments, we are using an implicit form of AP.

Next come the two main components of AP: “(a) long-term pitch memory, which is widespread, and (b) the ability to label pitches” (Levitin 1994, 415), similar to the labels active and passive (Dohn et al. 2014, 359). Now, what do researchers say are the general origins of the AP ability? As previously stated, Deutsch theorizes that AP is an evolved feature of speech. She supports this claim by presenting her research on native speakers of tonal languages, such as Vietnamese and Mandarin, and their high percentage of AP users. “According to this line of reasoning, the potential for acquiring absolute pitch is universal at

birth and can be realized by giving the infant the opportunity to associate pitches with verbal labels during the first year or so of life” (Deutsch 2002, 200). Later in the same article, Deutsch goes on to connect AP users and the commonly seen enlargement of the temporal lobe, which is involved in speech processing. The idea of a connection between AP users and enlarged temporal lobes plays a significant role in the theory of AP evolving from speech.

On the surface, AP seems to have little fundamental value to humans until one looks deeper into the similar brain mechanisms between the AP ability and speech. It is thought that AP was once an early speech tool that evolved into the musical trait it is now. Research shows that we are not the only species to have the AP ability. Both Deutsch and Moulton argue that songbirds also have AP and use it to communicate with one another. Parncutt and Levitin (2001) also acknowledge research supporting the idea that not only songbirds, but wolves, and monkeys also demonstrate AP memory. In some cultures, humans also use an implicit form of this ability to communicate. Evidence of that claim is shown in research by Deutsch on native speakers of tonal languages, such as Vietnamese and Mandarin, demonstrating how close in pitch a random group of speakers say the same phrase. Unsurprisingly, those two cultures wield some of the highest percentages of AP users in the world. Often, these speakers utilize long-term pitch memorization in the same way an AP user (not from a tonal language culture) would when recalling notes. Both are associating a pitch with a verbal label. From an evolutionary perspective, it makes sense that this ability is still genetically present in some animals as well as in humans, where it is used daily to communicate in some of our oldest cultures.

One might argue that just because there are a few articles on the AP ability evolving from speech, or because it may be used for minor tasks in our day-to-day lives, this does not demonstrate that it is useful for everyone. The “minor tasks” are music related anyway, so how is it useful to non-musicians? Because of the genetic component involved in the development of AP, only certain people have the ability. Regardless, research was still performed on all types of people, not just the musically inclined. With the evidence highlighted in this essay, it is safe to infer that although AP for music can only be acquired for a small percentage of lifelong musicians, there are other uses of the ability that can be developed, with one of the most prominent theories being that the AP ability helps humans inter-

pret different meanings in conversation.

While new findings about AP continue to emerge, many aspects of the ability remain mysterious. This essay explored the question, “Is absolute pitch used outside of music?” through analysis of peer-reviewed studies. Research suggests that the answer is yes, based on the theory that AP is an evolved speech tool, evidenced by tonal-language speakers, and by its daily use to aid in the interaction and communication of animals like mockingbirds. Additionally, individuals without the AP ability may also demonstrate an implicit form of the ability to make perceptions of pitch class and height. Although current research is still limited, these findings suggest that whether we are aware or not, different forms of AP can be used to communicate in our day-to-day lives—with or without music involved.



About the Author

Tyler Flock is a junior at Montana State University majoring in Music Education. He sings with multiple MSU Choirs, sings/conducts for a few in the Bozeman community, and plays the alto saxophone in the Spirit of the West Marching Band. When he is not performing, Tyler enjoys spending time with friends and family, playing pickleball, and exploring new places. In the future, Tyler hopes to obtain a doctorate in choral conducting and share his love for music at the collegiate level.

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