Love Languages: the Science and Your Mental Health

Abstract:

The concept of love languages is widely known, but is there any scientific evidence to support their existence? This newsletter explores the science behind the popular concept of love languages and their impact on our mental health. Despite academia's reluctance to study this topic, understanding love languages can help us practice self-reflection and ultimately inspire change. It is a summary of the research on love languages and their neurobiological differences, as well as their influence on the quality of our romantic relationships. This article offers a unique perspective, placing the concept of love languages in the context of brain activity and discussing the practical implications for our mental health. This article was first published in Subkiton on October 14, 2022 (https://www.subkit.com/pernillebuelow/posts/love-languages-the-science-and-your-mental-health).

JOSHA

Journal of Science, Humanities and Arts

josha.org

JOSHA is a service that helps scholars, researchers, and students discover, use, and build upon a wide range of content

Love Languages: the Science and Your Mental Health

Pernille Bülow
bulowp@gmail.com
PernilleBülow (Private Enterprise), Boston, United States of America

Abstract

The concept of love languages is widely known, but is there any scientific evidence to support their existence? This newsletter explores the science behind the popular concept of love languages and their impact on our mental health. Despite academia's reluctance to study this topic, understanding love languages can help us practice self-reflection and ultimately inspire change. It is a summary of the research on love languages and their neurobiological differences, as well as their influence on the quality of our romantic relationships. This article offers a unique perspective, placing the concept of love languages in the context of brain activity and discussing the practical implications for our mental health. This article was first published in Subkiton on October 14, 2022 (https://www.subkit.com/pernillebuelow/posts/love-languages-the-science-and-your-mental-health).

Are love languages real? And if so, are there neurobiological differences between people with distinct love languages? How do these love languages influence our mental health?

If you are like me, you grew up with the knowledge of 'the five love languages'. If you did not, you are in for some cool reading. If you did though, don't think you should just skip over this newsletter. Here, I am diving into the neuroscience of love languages, and I summarize the scientific wisdom acquired by psychologists in understanding how love languages affect the quality of our romantic relationships. This newsletter will serve as a teaser to next month's mental health newsletter where I will dive into the neuroscience of love, and how romantic relationships affect our mental health. Get ready to feel giddy!

Before we start all this love stuff, please allow me a moment to rant about academia aka research universities aka the people in the ivory towers (not all of them, but many of them): One of my biggest struggles with the current scientific world, is their reluctance to entertain ideas that they have already decided don't match their worldview. Love languages included. It's really a shame, because they miss out on opportunities to establish scientific insights on topics people are already familiar with, and that may hold scientific validity (i.e. topics that capture real phenomena).

You may be surprised that a neuroscientist like myself even want to entertain the science of love languages. Don't lose faith in me. Here is why I do this: I believe that love languages can help us capture one piece of who we are, and perhaps even make us question some of our behaviors while promoting others. I am a proponent of anything that makes you dig into yourself. Whether that be reading your horoscope, finding out your Meyers-Briggs personality type, your Enneagram number or Dosha (here are mine: cancer, E/INFJ/P (I am difficult to categorize sometimes!), 7, Pita), or any other test/philosophy. Why am I a proponent of this scientifically dubious activity? Because every time we do this, we practice self-reflection and self-awareness. We practice open-mindedness and we ask ourselves "is that really me?" "Is this who I want to be?" "Should I change the path I am walking?". As with anything else, taking words at their face-value without continued self-reflection is, of course, no good. In other words, these activities are valuable if you reflect on their content, rather than just mindlessly accepting what

they say. **I believe that love languages hold the same potential for self-reflection, which ultimately can be a catalyst for change.**

If you do a quick google search for love languages, you are going to get billions of hits (yes, billions! 1,380,000,000 to be exact). So what's the point of adding this newsletter to the mix? This article will take a different perspective than any of the other articles I could find out there. In contrast to the majority of the popular science articles, I will take a scientific approach aiming at understanding the research evidence behind love languages and put it into the context of brain activity and ultimately the practical implications for our mental health. Intrigued? Great. Let's get started.

What are the five love languages and what is the (brief) history of them?

The five love languages were defined and published in a book called "The 5 Love Languages" in 1992 by the author and family counselor Gary Chapman. Through his daily practice, Chapman had come across systematic differences and similarities in how people expressed and received love. Chapman found that successful marriages (and non-married couples, I would guess), are founded on recognizing and speaking your own and your partner's primary love language. This theory guided Chapman in his own practice to help struggling couples reignite their love life. For Chapman, a paramount motivation for writing this book was based on the assumption that the "in love" feeling is a temporary phase (this is true from a neuroscience perspective – we will talk about the science of this next month!), and once it dissipates, issues can arise among couples unless they have a thorough understanding of each other's love languages.

Later studies have continued to test whether Chapman's five love languages hold any accuracy. Fascinatingly, at least to me, studies keep finding that Chapman's five love languages capture how people think, feel and express love (Pett et al., 2022; Egbert & Polk, 2006). These results further emphasize the value of using the 'love language vocabulary' when speaking to people we interact with in a loving fashion.
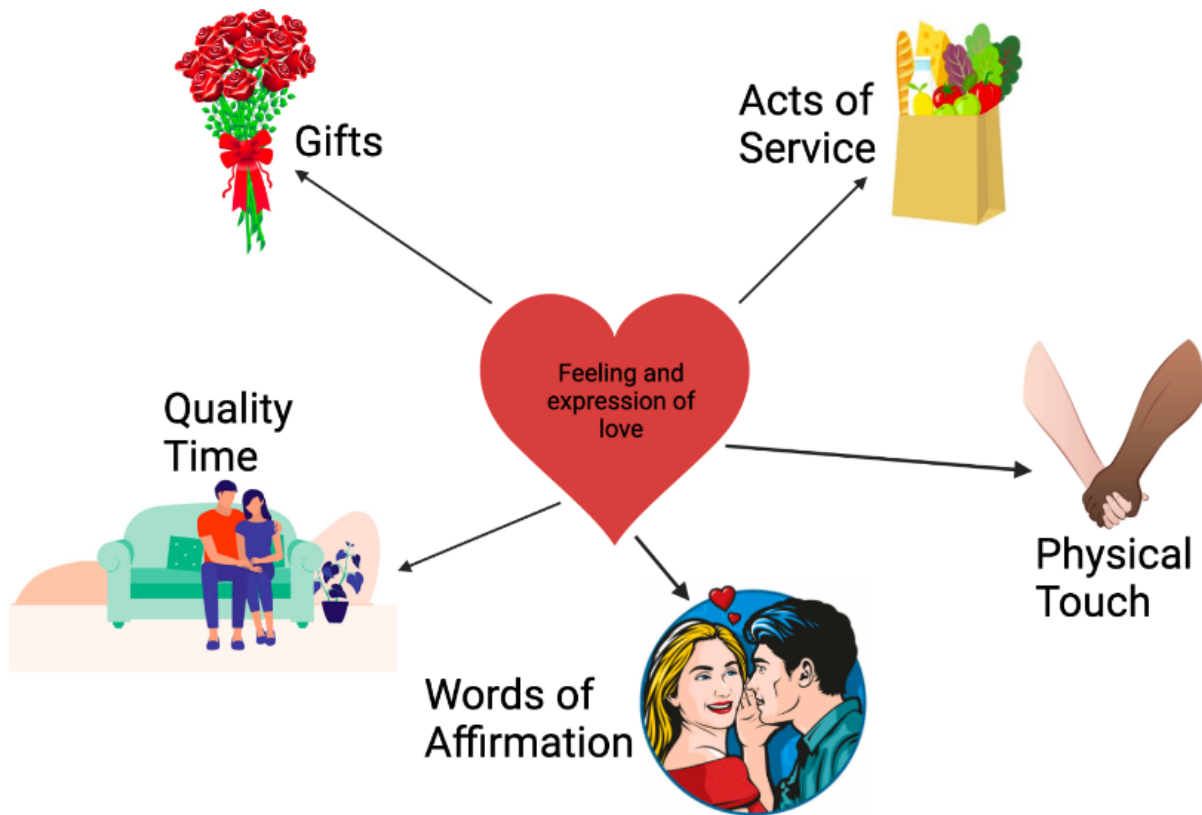
Figure 1: a simple overview of the five love languages.

Alright, so what are the five love languages?

Here is a brief summary:

1. **Words of affirmation** – giving or receiving verbal compliments, whether as words of appreciation, encouraging words or literal compliments about their looks/behaviors. An important aspect of this love language is that it is not just the content, but also the tone of voice that will dictate whether it "fills the love bank". Thoughtfulness, gentleness, and expressiveness is critical when providing words of affirmation.

2. **Quality time** – the essence of this love language is to spend time together. This can be expressed in many ways, but according to Chapman, one of the most common "dialects" of this love language is quality conversation. In contrast to words of affirmation, quality conversation is less about the words being said and more about having a meaningful conversation where people listen to each other. It is essential that there is an interest in learning about each other's day. Other ways this

love language can be expressed is through relaxing together, going on walks together.. you name it.. the point is that you are together.

3. **Receiving and giving gifts** – I think this is one of the most misunderstood love languages. Receiving gifts is not about how much they cost (and certainly just receiving money will not actually express love). Receiving gifts as a love language is about how much thought you put into it. How well do they know you? Did they pay attention to you when you said that thing about roses? Did they remember that your favorite color is blue? It can be as simple as writing them a poem or picking flowers in the neighborhood. Love is expressed as thought manifested into physical form. This love language is typically discussed in the context of receiving, but I think it is equally as valid to think about this love language as giving gifts. Perhaps you find much pleasure in the planning and action of giving gifts? I know I do, and it is certainly one way people can easily know whether I care deeply about them. If I bring you a gift, it is a manifestation of my love.

4. **Acts of service** – this is when action is the expression of love. Learn what your partner would like you to do, and do it. Of course, this is not about becoming your partner's slave, but rather paying attention to what is important to them. For example, having a clean kitchen, cooking for them (once in a while), planning weekend get-aways. Just like the love language of receiving gifts, acts of service are not just about "getting things done", but about putting thought into what your partner appreciates and needs. Pay attention, and respond to what they are asking for directly or indirectly.

5. **Physical touch** – from a scientific perspective, this is my favorite love language because there is a ton of exciting research uncovering how and why touch can make us feel not just pleasure but also affection and love. I will be dedicating an entire future newsletter just to this subject but consider this your first teaser. Your skin is full of nerve endings and receptors that are activated by different types of touch. Some are activated by pokes, others by pressure, and again others by vibration. There is a subset of receptors that are specifically activated by what scientists refer to us "pleasurable touch", which is usually associated with a certain rhythm of stroking over the skin. When people are stroked, and receiving affectionate touches, these nerve endings will activate different parts of the brain. People whose love language is physical touch place importance on getting these nerve endings activated and are likely also people that are more prone to giving hugs and other forms of interactive manifestations of love.

A consistent theme across all these love languages is that you must know your partner. There are no easy shortcuts. None of these love languages will be expressed or received successfully if you have not paid attention to your partner.

Note also that Chapman speaks about the concept of your primary love language. Your primary love language is the one that is most important to you (obviously..). However, other love languages (maybe even all of them) will still apply to your love repertoire. Just because you pay most attention to quality time, it does not mean you don't appreciate physical touch or acts of service. Identifying your primary love language will help you to ask for what you need and notice when you receive it.

How do you figure out your own love language? Here are some questions you can ask yourself:

- What do you ask for (or want) the most? Some recommend thinking about what bothers you the most as well, which probably is most relevant if you have an unfulfilled "love bank" due to the absence of your primary love language.

- Another thing to consider is what hurts most when you don't get it.

- I'd like to add to reflect on what feels the best. What moments do you remember feeling the most loved by your partner/friends?

- A last recommendation is to notice how you express love. Subconsciously, we often express love the way we want to receive it. This is useful to consider when identifying your own love language. Do note that the attentive partner will be expressing love according to their partner's love language as well (and not just their own – that's the whole point of Chapman's mission). Be aware that you may express and receive love through different love languages. I know this is the case for myself. I tend to give small gifts to everyone I care for, but receiving presents is not something that is critical for me. However, words of affirmation is a love language I express both on the receiving and reciprocating end.

To extend on the last point, for a successful and happy partnership, you must learn your partner's love language. According to Chapman, only by speaking your partner's love language can you create the foundation for a long-lived and happy partnership. In just a few paragraphs we will discuss how more recent scientific studies support this idea.

At what age do love languages 'emerge' & and why do we have the love language we do?

While reading the scientific literature on love languages, I came across one of Gary Chapman's later books called "Love languages of children". In this book, Chapman and his co-author Ross Campbell apply the five love languages to child rearing and maturation. Surely an interesting read for any (future) parent, but my real interest was asking *when do love languages emerge?* Are we born with our primary love language or is it shaped by our upbringing? Is our love language maybe a consequence of our attachment style (which is also a result of our early upbringing)?

Sadly, I cannot find any scientific literature that addresses these questions experimentally. In non-experimental articles, some opinion writers suggest that our primary love language is a reflection of what we lacked in childhood, while others suggest our primary love language represents what we lack at the moment. I would like to contest both of those ideas.

First, if our primary love language is what we lacked during our childhood, it implies that all childhoods were insufficient. While my own childhood was no rosy experience, I don't believe this applies to all children. In fact, I would not be surprised if our primary love language is in large part shaped by how our parents express love. Second, if our primary love language is simply a reflection of what we need now, it suggests that our love language is rather unstable (or that we constantly seek out the wrong type of love). And how would this theory address when people feel satisfied with their love? If they have no shortages, does that mean they would have no love language, or perhaps just not a primary one? While all these questions are extremely interesting (at least to me), I will leave it up to you to do your own reading to reflect on these questions further.

Are the brains different in people with distinct love languages?

Sadly, while psychologists have spent decades studying love languages, neuroscientists have yet to come on board. Next month we will talk about the neuroscience of love in general, but in this newsletter, I was hoping to talk about how brains differ between people that have different primary love languages.

While I could not find any research on love languages and the brain, I did find a scientific poster (presented at a conference) where researchers studied how the autonomic nervous system differed when participants listened to stories using distinct love languages. In general, their results reflected how people's arousal level, as a function of sympathetic nervous system activation, increased when they listened to the story with their own primary love language. This tells us that generally, we tend to feel more aroused, for example by having a faster heart rate and sweaty palms, when we recognize behaviors that reflect our own love language. This definitely indicates a possibility that the brains are different in people with different love languages: Your body will respond to distinct love scenes depending on your own love language.

Since there is no research specifically testing brain differences in people with distinct love languages, I instead chose to give you a little blurb on the research that exists on the brain activity of the actions associated with the five love languages. Let's get to it.

The brain on words of affirmation

Linguists, researchers that study language, have studied the complexity of words and sentences for decades, if not centuries. More recently, a subfield in linguistics has appeared called "neurolinguistics", and as you may have guessed already, these people study the effects of words and sentences on the brain, typically by using functional magnetic resonance imaging (fMRI) which can capture the changes in brain activity by measuring oxygen levels and blood flow. With this technique, neurolingusts found that receiving compliments from a stranger or one's mother activated various brain areas, including the dorsomedial prefrontal cortex and the anterior cingulate cortex (Hooley et al., 2005; Miedl et al., 2016).

A recent study that has not yet undergone peer-review (meaning third-party researchers have not yet evaluated whether they think the study was done appropriately), investigated how our brains are activated when we receive a compliment as well as when we are deciding on which compliment to give a romantic partner (Eckstein et al., 2022). Compared to receiving self-compliments (i.e. compliments the participants chose for themselves), compliments from their partner increased activation of the ventromedial prefrontal cortex (vmPFC), the anterior cingulate cortex (ACC) and the inferior frontal gyrus (IFG). When they were anticipating the compliment from their partner (but not themselves), the amygdala, insula and other temporal lobe areas displayed increased activity. If you have read

my stream of newsletters from the beginning, you are probably already well-versed on these brain regions. Isn't it interesting that we keep coming across the same brain regions even though we have talked about so many different facets of mental health? Anyhow, all of these brain regions are important for emotional responses (amygdala, insula), self-awareness (IFG, ACC, insula) and behavioral regulation (vmPFC, ACC). In other words, when we receive compliments from a romantic partner, we appear to start engaging brain regions associated with self-reflection and feelings of reward.

What's also interesting in the context of this love language, is how our brain is activated while giving a compliment. When giving a compliment, the study found that when a person selected/sent a compliment to their romantic partner there was a large increase in the activity of several brain areas associated with feeling emotions and rewards, including the insula and ventral striatum. These brain areas are involved with regulating the brain's dopamine levels, the neurotransmitter often associated with feeling good, indicating that giving a compliment makes a person feel happy. That result is consistent with all the research showing that similar brain regions display increased activation during pro-social behaviors (meaning that we are doing good for others, for example by helping or volunteering) (Bellucci et al., 2020), which correlates with people feeling significantly better during and after performing pro-social behaviors.

One can imagine that people whose primary love language is words of affirmation have a comparatively stronger increase in brain activity, e.g. of the ventral striatum, when giving words of affirmation to their loved ones. While giving compliments is an action that makes everybody feel better, some people may feel these emotions more intensely. Ultimately, activating this sense of reward in the brain and body likely motivates people with the words of affirmation love language to continue using words of affirmation to establish connections with their partners.

The brain on acts of service

After reading the above paragraph on the brain activity associated with giving compliments, you may already be expecting that there is a redundancy with the neural networks that are activated when helping others. I certainly would. Unfortunately, there are, again, no studies addressing this head on. However, lots of studies investigate the brain activity associated with helping strangers (or lightly acquainted people) (Bellucci et al., 2020). In those studies, brain areas important for 'mentalizing', i.e. when you imagine what is going on in someone else's head/body,

are often activated. This makes senses because it likely enables a person to imagine and expect what another person needs. Perhaps people with acts of service as their primary love language have a larger stress response when they see their loved ones in need? One study found that people that tended to be more empathetic, had a larger response in brain areas associated with 'social pain' (including the insula and the ACC) when seeing people in distress (in addition to an activation of the mentalization brain areas), and people with high empathy scores were more likely to later help people in distress (Masten et al., 2011). Perhaps people who primarily uses acts of service as their love language score higher on empathy scales, and perhaps also are more impacted (emotionally) by their loved ones' needs? More research is needed to answer these questions.

Maybe you are already ahead of me and wondering: "what about cultural differences?" or "what about generational differences?". That's a great point, but I would like you to remember one thing: just because we may do something, e.g. help our family members or partners, does not mean it is how we actually feel or express love. Cultural and generational pressures may leave a person with no choice but to follow those customs regardless of whether it resonates with their own love language. There are, however, definite cultural differences when it comes to helping family members through acts of service. One study found that people with Latino and White heritage were equally likely to financially contribute to their family members, however, their brain responses while doing so were quite different (Telzer et al., 2011). While Latinos displayed a higher activity in brain areas associated with reward while contributing to their family members' finances, Whites displayed highest activity in those reward areas when choosing the money for themselves. This type of result could be influenced by many factors, but cultural differences likely contribute to how people feel more or less happy when financially assisting their families. Certainly, this speaks to the differences between cultures that are more or less individualized.

If the brain activity looks so similar between words of affirmation and acts of service what makes these love languages different? Again, this is where I think that individual differences play a role. Some people may have a larger brain activation of these reward areas when giving (and receiving) compliments compared to when doing something for others. This leads us back to that interesting question of "how do you develop your love language?". Perhaps it is based on what type of love language(s) you were exposed to while growing up, or maybe it is biologically

inherent to your personality, which type of love language you respond more to. Much more research is needed before we can answer that question!

The brain on receiving and giving gifts

Receiving and giving gifts is not just a human tradition of establishing connections, romantic or otherwise. Animals bring partners and "prospects" gifts to create and maintain relations. Despite this tradition, I could not find many publications on the neuroscience of giving and receiving gifts. However, what I could find creates a nice insight into the brain on gifts as a love language.

One study found that the reward of receiving a gift, romantic or not, was modulated by who was giving it (Nakagawa et al., 2015). Only romantic partners led women to have elevated activity of brain areas (specifically the ventral tegmental area, nucleus accumbens and caudate) that were associated with reward. Importantly, the increased activity in the caudate was specific to receiving a gift from the romantic partner, and not just seeing the partner. One brain area, the ACC, appeared to modulate the brain's reward responses when seeing that the gift was either from a stranger or a romantic partner. The ACC is important for social cognition, and in this context may be important for associating the value of the gift with the emotional connection they already have with the receiver. This relationship was true for both romantic and unromantic gifts, although stronger for the romantic gifts.

While this love language is mostly discussed in the context of receiving gifts, I think it is also important to discuss the "other side of the coin": giving gifts. One study found that giving gifts based on altruistic (rather than strategic) motivations, correlated with increased activity in brain areas associated with feeling and anticipating reward (just like acts of service and words of affirmations!) (Cutler & Campbell-Meiklejohn, 2019). Interestingly, one brain region called the ventromedial prefrontal cortex (vmPFC) displayed a unique activation pattern depending on whether the gift giving was altruistic or strategic: altruistic giving led to the highest levels of activation in the posterior parts of the vmPFC (meaning the parts of the vmPFC that are most towards the back of the head), whereas strategic giving was associated with highest activity in the anterior vmPFC (meaning the parts of the vmPFC that are most towards the front of the head). This result is interesting because it tells us something about how even particular brain regions can have their own sub compartments that play distinct roles in different activities, motivations, and feelings.

To summarize, these people enjoy giving gifts – and likely also the planning aspect of it. Again, this likely does not apply to everyone. In fact, it might mainly apply to people that identify gifts as (one of) their primary love language.

The brain on receiving and giving touch

Touch is one of my favorite topics in general. But it is probably also the one that describes my primary love language best. Hence, I have some selfish interest in this topic.. Anyhow, enough with my confessions. What do we know about the neuroscience of romantic touch? One study found that the anticipation and action of being touched by your partner compared to a stranger led to significant activity increase in multiple brain areas, including the insular cortex, the primary somatosensory cortex, the amygdala, and the orbitofrontal cortex (Suvilehto et al., 2021). By now, you probably have a pretty good understanding of most of these brain regions. The amygdala, insula and orbitofrontal cortex are all important for and involved in emotion regulation, while the primary somatosensory cortex is important for the sensation of being touched. Note that in this experiment all of the "touchers" (i.e. regardless of whether it was the partner or a stranger) had the same type of touch pattern and pressure. This is an important aspect of segregating whether the brain differences are due to who is touching or the way they are touching. Based on their experimental approach, it seems likely that they are capturing the brain differences induced by who is touching.

What happens in the brain when your partner touches you compared to when a stranger does? One study found that your brain most likely releases oxytocin when you have been told that your partner is touching you compared to stranger, and this is what activates the brain areas associated with feeling good (Kreuder et al., 2017). I say "may" because of the way the study was designed. Instead of having a stranger and partner touch the participant, as in the study described above, it was always a researcher who touched them. The participant could not see the toucher, so they never knew they were being lied to! This enabled the scientists to control the exact pressure and pattern with which the participant was touched and could capture the brain activity differences between what the participant thought was happening. There are of course caveats to this approach: for example, the participants may sense that the touch is so unlike their partner's that they do not believe or at least have natural responses to the touch. That is why it will be important for future research to study brain activity during romantic touch in more naturalistic environments.

What about giving touch? There is a good number of studies on self-touch, in itself a very interesting topic but not what we are concerned with here. Unfortunately, I could not find any relevant studies on applying romantic touch to others. I would surmise that there are a couple of things that happen while touching others in people whose love language is touch:

1. They likely have an activation of the reward areas like what we have seen in the brain activity while giving words of affirmation, giving gifts, and providing acts of services.

2. They may have heightened activity in the nerve endings of their skin that are associated with pleasant touch – we will talk much more about this interesting biology in future Neuroscience and Mental Health newsletters!

The brain on quality time

Neuroscience research on quality time is scarce, if not completely absent. Why is that? Likely due to methodological and technical challenges. How do you capture the brain response to being with another person in a controlled environment? Putting equipment on someone's head, for example an EEG device, to measure brain activity certainly interferes with the interaction. Moreover, to capture brain activity in a reliable manner you must sit still. Do you usually sit super still (and upright) when spending quality time with your loved ones? I definitely do not. With that said, there are ways that we can measure heart rate and other autonomic nervous system functions while you spend time with your loved ones. Due to space, I won't go into those details here, but rest assured it will be touched upon in the next newsletters!

Now, we live in new times where quality time could be not just in-person, but also virtual. More and more people live far apart or are separated due to other factors (such as a pandemic…). We also use technology to interact increasingly more with our loved ones in a way we did not do just one decade ago (e.g. texting, social media). Perhaps the love language of quality time needs to be assessed not just in the in-person context but also in the virtual world? For example, I have friends where daily texting with their partner to exchange how their day is going is critical. This is not just about getting pivotal information, but about sharing the small (and to some people, boring) things that happen during their day. Is this behavior an expression of the quality time love language? If so, we can start studying that in entirely new ways that also make it much easier to do neuroscience research (it's

much easier to measure the brain activity of someone who is texting compared to someone who is cuddling with their partner on the couch).
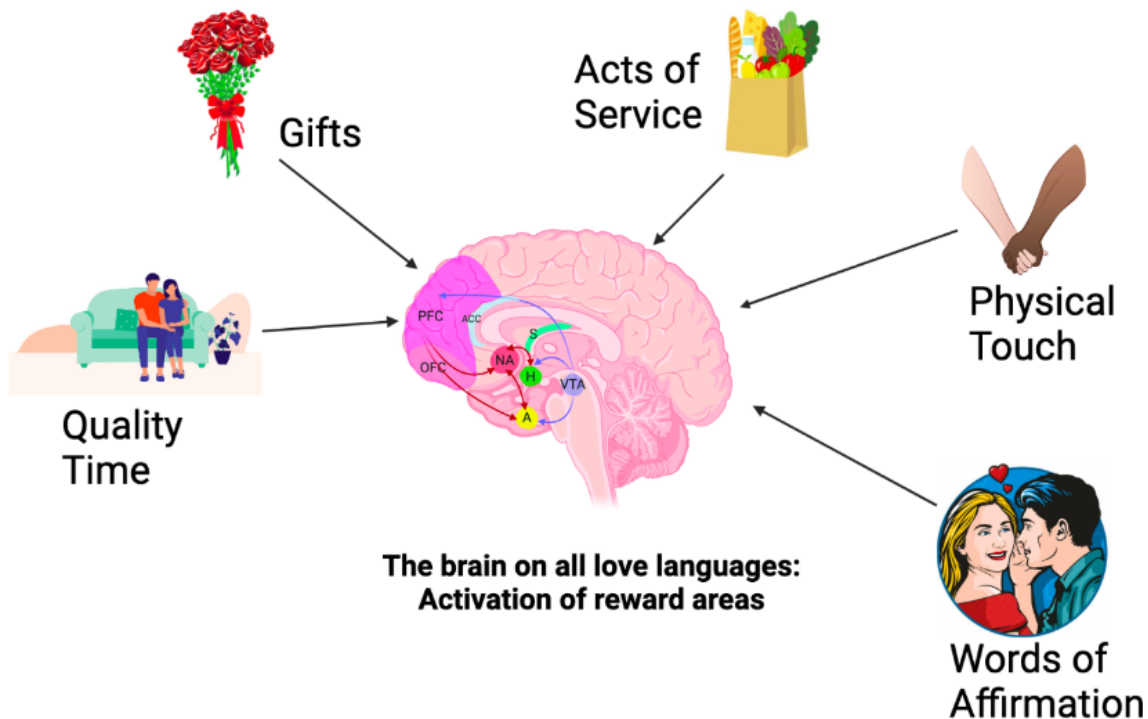

Figure 2: expressing and receiving love through our love languages leads to increased activity of multiple brain regions associated with reward, both the actual feeling and the anticipation of it. More studies are needed to compare if there are important differences in the specific reward areas that are activated across the different love languages. Moreover, we know nothing about possible gender differences.

So to summarize: a key aspect of each of these love languages is that the brain activity in areas associated with feeling and anticipating rewards are activated while people perform or receive their primary love language.

It is important to keep in mind that all the results I have discussed above should be thought of in the perspective of individual differences. Moreover, since none of the research above is specifically addressing love languages, I am merely painting a picture of what could be true rather than what is. If you are a researcher interested in love languages and neuroscience, please get started with giving us some answers! Thank you very much :)

What about when our romantic partner does not speak or express our primary love language? How does that affect us? You probably already know that in those

situations, a relationship will suffer. I am going to discuss the science of love languages and relationship quality below, but I wanted to bring the results of one (perhaps, motivating) study to your attention: if you find your romantic partner unsupportive, it will increase your brain's response to mistakes they make (Palmwood and Simons, 2021). It is easy to imagine how this can lead to a vicious cycle driven by a negativity bias, i.e. that you pay attention to everything they do wrong rather than what they do right. The key is to, obviously, avoid this situation. But if you are in the process of trying to break out of such a vicious cycle, understanding and talking about love languages may be of help.

How do the love languages help our romantic relationships?

When I was researching about love languages, many publications appeared that all touched on how love languages correlate with romantic relationship satisfaction. This makes sense since the concept of love languages was originally developed to aid in couples/marriage counseling.

Researchers have found that if both partners have the same primary love language, they are less likely to report relationship distress (Bland & McQueen, 2018). Likewise, couples that have similar love languages also report higher relationship and sexual satisfaction (Mostova et al., 2022). Note that while both of these studies were based on a relatively large cohort (around 100 couples), they were all heterosexual and most likely white. As far as I can tell, there is limited (aka zero) research on love languages in LGBTQIA+ and BIPOC couples. That is clearly a call for action for many researchers out there.

Interestingly, some studies question whether having similar love languages significantly influences the quality of romantic relationships. One study based on data from 67 (heterosexual) couples reported that the important factor about relationship satisfaction was not whether they had matching primary love languages, but rather **whether they had a high ability to self-regulate** (Bunt & Hazelwood, 2017). Interestingly, while relationship satisfaction for the female partner depended only on her own ability to self-regulate, when couples did not have matching primary love languages the male partner's relationship satisfaction was dependent on his own as well as the female's ability to self-regulate. The authors take this result to suggest that females are more likely to identify misalignments in the love languages expressed between themselves and their partner, and that the

females are the ones driving behaviors to address these differences. Sounds pretty accurate (and perhaps stereotypical) to me… :o)

Along this line of research, scientists have investigated the positive effects of having a high self-regulatory ability on not just romantic but all types of close interpersonal relationships (Luchies et al., 2011). Self-regulation is a person's capacity to direct their thoughts, feelings, and behaviors to achieve a certain goal, for example maintaining an amicable relationship (Luchies et al., 2011). People vary in their ability to self-regulate. Some are super good, while others are less so. These differences can be measured via self-report assessments (e.g. questionnaires) as well as brain imaging. Specifically, the medial prefrontal cortex – a region in the frontal lobe – is particularly active in people with high self-regulation capacity (van Noordt & Segalowitz, 2012). Interestingly, this brain pattern is also observed in children with high self-regulation, implying that the ability to self-regulate may, in part, be innate. Anyhow, I am digressing. To conclude on the original question "how do love languages inform our romantic relationships?" we can rely on the following scientific facts:

1. When couples have similar love languages, they typically report less romantic distress and higher relationship and sexual satisfaction

2. However, regardless of their love language match, the individual ability to self-regulate will have a great influence on the relationship quality

3. When a couple have mismatched love languages (e.g. one has quality time and the other words of affirmation), the female's ability to self-regulate is the most significant influence on relationship satisfaction for not just the female but also the man.

What can we do to implement this knowledge into our lives?

So now we know that

1. Love languages are scientifically proven to measure and describe how people express and receive love

2. Understanding your own and your partner's love language is critical for your relationship satisfaction

That's all great, but how do we go about implementing this knowledge to our lives?

The paragraphs above already allude to two major steps you can take in this process:

1. Practice self-awareness: what is your primary love language? Are you currently missing or receiving it?

2. Practice self-regulation: how can you direct your thoughts, feelings, and behaviors to maintain a healthy romantic relationship? What can you do to ensure that your partner's love tank is full (i.e. how can you express love in their primary love language)? What are actions you can avoid in order to ensure that your partner does not feel unloved?

Knowing this, it is not surprising that researchers have found that to improve relationship satisfaction both partners must commit to self-change (Hira & Overall, 2010). Thus, **self-regulatory behaviors must be practiced by both partners in order to improve the relationship**. I really want to emphasize that, because I think the research could be misconstrued to suggest that only women need to practice their self-regulation. This is not true. In fact, what it probably implies, as mentioned earlier, is that females are more naturally inclined to understand when certain actions are needed to sustain a satisfying relationship. Imagine if males became equally as astute and capable of self-regulating. That may take the relationship to completely new heights.

If you are really cynical you may be wondering "what does all of this have to do with my mental health?".

Excellent question. Healthy and happy relationships

1. Correlate with improved mental health for each of the individuals in the partnership (Braitwaithe & Holt-Lunstad, 2017).

2. Correlate with reduced risk of dementia, a condition that will certainly affect your mental health

3. May even lead you to live a longer life (probably because you are happier, and thus engaging in healthier activities and routines)

Final conclusions

Love languages are scientifically validated concepts that can help us understand ourselves better. It appears likely that our brains and bodies differ according to which love language(s) speak mostly to you. I hope the contents of this – long, sorry – newsletter gave you food for thought and hopefully new language to talk about these topics with your partner, family, and friends.

Next month we will talk about the science of falling in love and lasting love. We will talk about how romantic relationships improves your mood and tie it back to your attachment style and love languages.

As per usual, feel free to reach out with feedback, thoughts, and suggestions!

Talk soon!

References

1. Bellucci G, Camilleri JA, Eickhoff SB, Krueger F. Neural signatures of prosocial behaviors. Neurosci Biobehav Rev. 2020 Nov;118:186-195. doi: 10.1016/j.neubiorev.2020.07.006. Epub 2020 Jul 21. PMID: 32707344; PMCID: PMC7958651.

2. Bland, A. M., & McQueen, K. S. (2018). The distribution of Chapman's love languages in couples: An exploratory cluster analysis. Couple and Family Psychology: Research and Practice, 7(2), 103–126. https://doi.org/10.1037/cfp0000102

3. Braithwaite S, Holt-Lunstad J. Romantic relationships and mental health. Curr Opin Psychol. 2017 Feb;13:120-125. doi: 10.1016/j.copsyc.2016.04.001. Epub 2016 Jun 20. PMID: 28813281.

4. BUNT, S. and HAZELWOOD, Z.J. (2017), Walking the walk, talking the talk: Love languages, self-regulation, and relationship satisfaction. Pers Relationship, 24: 280-290. https://doi.org/10.1111/pere.12182

5. Cutler J, Campbell-Meiklejohn D. A comparative fMRI meta-analysis of altruistic and strategic decisions to give. Neuroimage. 2019 Jan 1;184:227-241. doi: 10.1016/j.neuroimage.2018.09.009. Epub 2018 Sep 7. PMID: 30195947.

6. Eckstein, M., Stößel, G., Gerchen, M.F., Bilek, E., Kirsch, P., Ditzen, B. (2022) Neural responses to instructed positive couple interaction: An fMRI study on compliment sharing. bioRxiv 2022.06.15.496238; doi: https://doi.org/10.1101/2022.06.15.496238

7. Egbert, N., Polk, D. (2006) Speaking the Language of Relational Maintenance: A Validity Test of Chapman's Five Love Languages, Communication Research Reports, 23:1, 19-26, DOI: 10.1080/17464090500535822

8. Hira, S. N., & Overall, N. C. (2010). Improving intimate relationships:Targetingthepartnerversuschangingthe self. Journal of Social and Personal Relationships, 28, 610–633. doi:10.1177/0265407510388586

9. Hooley JM, Gruber SA, Scott LA, Hiller JB, Yurgelun-Todd DA (2005) Activation in dorsolateral prefrontal cortex in response to maternal criticism

and praise in recovered depressed and healthy control participants. Biological psychiatry 57:809-812.

10. Kreuder AK, Scheele D, Wassermann L, Wollseifer M, Stoffel-Wagner B, Lee MR, Hennig J, Maier W, Hurlemann R. How the brain codes intimacy: The neurobiological substrates of romantic touch. Hum Brain Mapp. 2017 Sep;38(9):4525-4534. doi: 10.1002/hbm.23679. Epub 2017 Jun 5. PMID: 28580708; PMCID: PMC6867116.

11. Luchies LB, Finkel EJ, Fitzsimons GM. The effects of self-regulatory strength, content, and strategies on close relationships. J Pers. 2011 Dec;79(6):1251-80. doi: 10.1111/j.1467-6494.2010.00701.x. Epub 2011 Oct 19. Erratum in: J Pers. 2012 Feb;80(1):253. PMID: 21480907.

12. Masten CL, Morelli SA, Eisenberger NI. An fMRI investigation of empathy for 'social pain' and subsequent prosocial behavior. Neuroimage. 2011 Mar 1;55(1):381-8. doi: 10.1016/j.neuroimage.2010.11.060. Epub 2010 Nov 28. PMID: 21122817.

13. Miedl SF, Blechert J, Klackl J, Wiggert N, Reichenberger J, Derntl B, Wilhelm FH (2016) Criticism hurts everybody, praise only some: Common and specific neural responses to approving and disapproving social-evaluative videos. NeuroImage 132:138-147.

14. Mostova O, Stolarski M, Matthews G. I love the way you love me: Responding to partner's love language preferences boosts satisfaction in romantic heterosexual couples. PLoS One. 2022 Jun 22;17(6):e0269429. doi: 10.1371/journal.pone.0269429. PMID: 35731784; PMCID: PMC9216579.

15. Nakagawa J, Takahashi M, Okada R, Matsushima E, Matsuda T. Women's Preference for a Male Acquaintance Enhances Social Reward Processing of Material Goods in the Anterior Cingulate Cortex. PLoS One. 2015 Aug 24;10(8):e0136168. doi: 10.1371/journal.pone.0136168. PMID: 26301954; PMCID: PMC4547715.

16. Palmwood EN, Simons RF. Unsupportive romantic partner behaviors increase neural reactivity to mistakes. Int J Psychophysiol. 2021 Dec;170:12-19. doi: 10.1016/j.ijpsycho.2021.09.008. Epub 2021 Sep 28. PMID: 34592343.

17. Pett, R.C., Lozano, P.A., Varga,S. (2022) Revisiting the Languages of Love: An Empirical Test of the Validity Assumptions Underlying Chapman's (2015) Five Love Languages Typology, Communication Reports, DOI: 10.1080/08934215.2022.2113549

18. Suvilehto JT, Renvall V, Nummenmaa L. Relationship-specific Encoding of Social Touch in Somatosensory and Insular Cortices. Neuroscience. 2021 Jun 1;464:105-116. doi: 10.1016/j.neuroscience.2020.09.015. Epub 2020 Sep 12. PMID: 32931848.

19. Telzer EH, Masten CL, Berkman ET, Lieberman MD, Fuligni AJ. Gaining while giving: an fMRI study of the rewards of family assistance among white and Latino youth. Soc Neurosci. 2010;5(5-6):508-18. doi: 10.1080/17470911003687913. PMID: 20401808; PMCID: PMC3079017.

20. van Noordt SJ, Segalowitz SJ. Performance monitoring and the medial prefrontal cortex: a review of individual differences and context effects as a window on self-regulation. Front Hum Neurosci. 2012 Jul 11;6:197. doi: 10.3389/fnhum.2012.00197. PMID: 22798949; PMCID: PMC3394443.

About the Author

Pernille Bülow is a neuroscientist, research consultant and writer. Originally from Denmark, she moved to the U.S. to finish her B.S. in psychology at UC Berkeley, followed by a PhD at Emory University and a subsequent Post-doctoral fellowship at Harvard Medical School/Massachusetts General Hospital (MGH). Pernille is an expert on brain development and mental health research, topics on which she consults and writes. She currently lives in Boston with her two cats and guinea pig. Pernille writes for Psychology Today and has a monthly newsletter on neuroscience research and mental health (https://www.subkit.com/pernillebuelow). Pernille is the founder of the non-profit Mind Blossom Inc, and an Advisor and Board Member for companies that tackle mental illness and neurodevelopmental disorders. Read more about Pernille on her website: www.pernillebuelow.com.