

The Theory of Perceived Frequency: A Proposal Based on the Doppler Effect Applied To Social Problems

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Abstract: Over time, numerous studies have advocated for an integrative approach to knowledge generation, where social sciences incorporate advances from natural sciences and vice versa. This promotes interdisciplinary research that fosters the development of more robust and comprehensive methodologies, techniques, and theories. This article aims to analyze the potential theoretical applications of the Doppler effect as an explanatory analogy for social problems and associated social interventions, proposing the “Theory of Perceived Frequency” a novel theoretical framework that highlights fundamental aspects of social issues in general. Specifically, the article considers core categories of social problems, such as inequality, social exclusion, and the dynamics of risk and vulnerability, as illustrative domains in which shifts in “perceived frequency” become especially salient. By analyzing a phenomenon inherent to physics, the article identifies key elements intrinsic to social work intervention, such as the evolution of life processes, the resilience developed in response to social problems, and the establishment of protective systems against them, and shows how the Theory of Perceived Frequency can strengthen these elements by offering a dynamic framework for interpreting variations in the perception, urgency, and intensity of social problems.

Keywords: Social work, Doppler effect, social reality, social problems, social intervention, theoretical approach

The division between what is commonly categorized as natural sciences and social sciences extends beyond a mere classification of the various fields that compose the body of knowledge today (Eger, 2001; Ku & Zehr, 2022). Although this separation has a pragmatic justification, it is not without criticism. As early as the late 1950s, Snow (1959) consistently criticized this separation, asserting that there existed two well-differentiated cultures, the humanistic and the scientific. These cultures not only failed to converge but also maintained a relationship rooted in prejudice, which impeded, and continues to impede, the essential interdisciplinarity needed to address many contemporary and ongoing phenomena and problems. This is despite numerous scholars from both branches attempting to unite or leverage advances in natural and social sciences to progress in both areas, highlighting the need for complementarity (Beltrán, 1985; Mahringer et al., 2023; van Koppen, 2020; Weber, 1997).

One of the main reasons for this perspective could stem from the fact that, while the 19th century CE saw the first attempts to formally establish the foundations of scientific knowledge specific to the social sciences, the natural sciences had already progressed beyond this process, initiated centuries earlier with seminal works such as Copernicus's *De Revolutionibus Orbium Coelestium* in 1543 and Newton's

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Philosophiæ Naturalis Principia Mathematica in 1687. Contributions from Galileo, Kepler, and philosophers like Descartes and Bacon in developing the scientific method placed natural sciences in a much more established position. They set the foundations for what was understood as science, achieving significant advances that were constantly improving and expanding.

Consequently, in their early stages, social sciences sought to adopt models from natural sciences, applying an established scientific method to their own object of study—society. Notable examples illustrating this phenomenon include Auguste Comte's positivist philosophy between 1839 and 1842, where he proposed naming what we now know in sociology as “social physics,” and Malinowski's (1922) efforts to align the practice of anthropology with methods recognized as purely scientific, akin to those in exact sciences like physics.

In this context, particularly during the Enlightenment and under Descartes's Cartesian method, the influence of the concept of science as a universal value necessitated setting aside the study of subjects deemed “subjective” to make way for a more technical approach. This approach adopted a positivist perspective where “objectivity” and the standardization of intervention became fundamental requirements (Comte & Martineau, 1853/1896; Durkheim, 1938/1982).

While it is not the objective of this article to delve into debates, partly resolved and partly ongoing, about objectivity versus subjectivity or the unity versus plurality of scientific methodology, it is important to note that these issues are significant in understanding the complexities of the division between the sciences. This division remains somewhat problematic today. In practical reality, the distinction between sciences extends beyond the dichotomy of natural versus social sciences. Authors like Lodahl and Gordon (1972), in an attempt to ground more abstract reflections, analyzed this issue based on differences in the nature of knowledge, proposing a classification into “hard” sciences, “soft” sciences, and the applied aspect of each.

Specifically, social work could be classified as an applied social (“soft”) science or, according to Duque (2010), as applied social knowledge, a social science that intervenes directly with people and therefore possesses a significant subjective component regarding intervention elements. However, much like sociology and anthropology, early figures such as Richmond (1917) incorporated positivist principles into their methodological approaches, basing them on methods akin to those in medicine. The objective remained focused on the applied aspect, seeking standardization of practice and professionalization rather than formal sociological theorization.

This orientation was strongly influenced by Flexner's (1915) address questioning whether social work qualified as a profession. His critique accelerated the pursuit of scientific legitimacy and contributed to the prioritization of casework, an area most amenable to standardization, over other contemporary forms of practice such as settlement work, community organizing, and labor activism. Consequently, the field's early consolidation reflected broader tensions between professionalization and the diverse, community-based roots of social work.

Today, the scientific nature of social work is still debated, naturally deemed impossible from a neopositivist standpoint, and methodological concerns have been present since its professionalization and the development of casework (De Robertis,

2006). Moreover, achieving the status of a science confers authority and prestige (Bourdieu, 1979/1984; Kuhn, 1996), which has partly allowed social work to gain ground, adopt a more defined identity, and attain certain professional recognition.

This professional and scientific recognition is further complicated because, while social sciences faced challenges in establishing themselves due to the issues mentioned and the pressing need to conform to the positivist understanding of science, the process for social work was even more problematic (Dartiguenave & Gaillard, 2023; Shaw, 2015). This difficulty arises because social work developed contemporaneously with other social sciences but had to establish itself first as a profession, emerging from charity, volunteerism, and feminization, and only later as a science (Negura et al., 2025; Tarshish, 2025). Such issues lead to practical challenges; for instance, due to the necessary structural separation for scientific organization within university curricula, social work cannot be recognized as a health profession despite its presence in the health sector for over a century, as it is not classified as a health science (Popov & Chompalov, 2015).

Furthermore, social work often becomes mired in a false dichotomy so pervasive that it frequently manifests as a practical and methodological dilemma, the division between intervention and research. While the micro–macro divide has traditionally been identified as the dominant tension shaping professional identity, scholars have also documented a persistent research–practice gap that complicates the integration of empirical knowledge into everyday social work settings (Denvall & Skillmark, 2021; Mancini et al., 2021; McNeill & Nicholas, 2017). This gap is often attributed to the production of research within academic environments that are insufficiently attuned to the lived realities of practitioners and the communities they serve, which can render research findings of limited relevance or even detrimental to practice (Healy, 2022; Heinsch et al., 2016; Sichling & O'Brien, 2020).

Since the origins of its professionalization, there has been recognition of the need to dedicate part of professional practice to research as a means of improving practice and standardization, which enabled professionalization and remains key in matters such as independence and identity (Cívicos & Hernández, 2007; Musa et al., 2024; Richmond, 1917). Therefore, it is necessary to view research and intervention as a binomial rather than an antagonistic dichotomy; they must converge and complement each other regardless of the field of intervention in which the professional operates (Gambrill, 2016; Yusta Tirado, 2023).

Understanding this context, the present proposal contends that, without seeking professional and scientific recognition through a continuous obsession with adopting neopositivist approaches, it could be beneficial to continue breaking down the imposed barrier between social and natural sciences. This can be achieved by employing well-established theories as potentially useful analogies to explore new ways of understanding and intervening in social work. This is mainly due to the highlighted need to create and advance our own research to improve social intervention, viewing both as part of a continuum.

Indeed, applying theories from outside the social sciences in social work is not new (Hannan & Teater, 2023). Social work is continuously explained and understood through theories like general systems theory (von Bertalanffy, 1968), originating in biology; ecological theory, based on principles of natural ecology (Bronfenbrenner, 1979); and models like the crisis intervention model (Caplan, 1964; Lindemann, 1944),

which use terms such as homeostasis in comparison to the metabolic processes of organisms. While these theories or models do not have a direct application, they serve as explanations that help to understand.

In this vein, and in an effort to combine a widely known theory with multiple applications—initially inherent to physics—with social sciences and specifically social work, this article aims to analyze the potential theoretical applications of the Doppler effect as an explanatory analogy for social problems and associated social interventions. It proposes the Theory of Perceived Frequency a novel theoretical framework that highlights fundamental aspects of social issues in general.

By advancing this analogy, the article seeks to contribute to knowledge building in two complementary ways. First, it offers a conceptual tool that helps clarify how social problems are perceived, amplified, or attenuated across different social positions, institutional contexts, and temporalities, thereby expanding the theoretical repertoire available to social work and the social sciences. Second, by articulating how these dynamics mirror patterns observed in the Doppler effect, the framework provides practitioners with a heuristic for interpreting discrepancies between lived experience, professional assessment, and policy discourse. In doing so, this proposal aims to strengthen the dialogue between research and practice and to support more context-sensitive, reflexive, and analytically grounded social interventions.

The Doppler Effect: Definition and Main Applications

In 1842, Christian Andreas Doppler, a physicist and mathematician, proposed in his treatise *Über das farbige Licht der Doppelsterne und einige andere Gestirne des Himmels* (“On the Coloured Light of Double Stars and Some Other Stars in the Heavens”) the discovery of what is now known as the Doppler effect (Doppler, 1842). He disseminated his theories about the changes in frequency produced when the source of a sound changes position relative to the receiver.

Subsequently, meteorologist Buys-Ballot (1845) investigated Doppler's hypothesis, confirming that the tone of a sound from a source approaching the receiver is higher-pitched than if the source is moving away. Following this initial application and Buys-Ballot's confirmation of the theory concerning sound, years later, French physicist Hippolyte Fizeau applied Doppler's studies to the field of light, with special relevance in astrophysics (Lequeux, 2020). He determined that celestial bodies approaching Earth emit electromagnetic radiation shifted towards blue, while those moving away appear red.

Over the decades, scientists such as the recent Nobel Prize laureate in physics, Anton Zeilinger, have identified the Doppler effect as the effect of the millennium. Moreover, according to the father of modern physics, Albert Einstein, it is a phenomenon that will remain significant regardless of the electromagnetic process theory adopted (Christian Doppler Foundation, n.d.). In this context, it is noteworthy that the phenomenon in question has a strong relationship with Einstein's theory of relativity (Einstein, 1917), because the frequency of a wave, be it light or sound, depends on the displacement of the emitter or receiver, being relative to the receiver's position, thereby introducing a subjective element familiar in social sciences.

Therefore, the Doppler effect is one of the phenomena that, although originating in physics, has extensive applications in our society today (Nolte, 2020). It is significant

in fields such as astronomy and medicine, as well as in areas related to geolocation and transport (Petrescu, 2015), and in the prediction of certain situations, particularly those involving danger (Huang et al., 2021; United States National Science Foundation, n.d.). It could also serve as a theoretical basis for exemplifying social phenomena, as will be explored later.

Practically everyone has experienced the change in the sound of an ambulance siren depending on its location relative to the listener. Often, this change allows us to identify whether the ambulance is approaching or moving away, and therefore whether a situation of danger is imminent. This is because when there is movement in the position of the receiver or the emitter, in this case, the emitter, the frequency of the received wave varies, compressing if it approaches or expanding if it moves away (Paredes et al., 2011). This variation in sound frequency, which people perceive as lower or higher tones, allows the identification of greater or lesser proximity of an object relative to our position, as well as the object's direction.

From Fizeau onwards, the Doppler effect began to have applications concerning light. According to the Spanish Astronomical Society (n.d.), when an object emitting light approaches us, as can happen in astrophysics with a star or a galaxy, the perceived light waves are narrower and tend to appear blue. Conversely, if this light emitter moves away, the perceived light shifts towards red. The intensity of the perceived color varies depending on the speed at which the moving object is travelling, making this phenomenon valuable for measuring the speed of objects approaching or moving away based on the emitted light. Notably, this phenomenon has been so influential in studying our universe that major theories concerning its expansion use the term “redshift” as an indicator of its growth (Hawking, 2002).

Finally, it is important to emphasize that this phenomenon is not limited to sources of sound or light; its properties are reproduced in other media that also emit or transmit waves. For example, a ship moving over a water surface will generate waves with different frequencies depending on its movement, similar to the case of light. These waves can be used to deduce the ship's direction, proximity, or distance, in essence, its position, mirroring the technology used in devices like traffic radars (Freire, 2023).

Regarding current applications of the Doppler effect, they are virtually innumerable due to their quantity and diversity. It has significant applications in medicine, where it plays a crucial role in the development of ultrasound technology and associated diagnostic tests. In physics and astrophysics, it is used to measure distances and numerous variables related to objects that are otherwise inaccessible to humans. In everyday life, it contributes to devices such as radar, laser, and GPS geolocation systems, among others (Nolte, 2020).

Theory of Perceived Frequency: A New Proposal For Understanding Social Problems

As we have seen, the scientific properties of the Doppler effect are extensive, and creating a direct application from a social perspective, or specifically within social work, would be practically impossible. However, a theoretical approach to the phenomenon allows us to explore the concept and use it as a basis for the analogy proposed here, employing it as a method to exemplify known processes from a new theoretical understanding and explanation.

The first factor to consider among those involved in the Doppler effect is the variation in the perceived wave frequency, which is essentially the cause of the phenomenon itself (Neipp et al., 2003). In the physical realm, this variation occurs when the source of the wave moves relative to the observer, causing a change in the frequency that the observer perceives. Applying this idea to social work may initially seem distant, but from a social perspective, we could interpret that the origin of a social problem also has a temporality and a “frequency” that varies according to the perception of those experiencing it (Figure 1).

To better understand this analogy, consider how a social problem, such as unemployment, can impact a person. When this problem is imminent (for example, the person has just lost their job or is about to), the “frequency” of the problem will be perceived as much higher; concern, stress, and emotional impact are intense. This is similar to how the sound of an approaching ambulance is higher pitched. Conversely, once the situation has stabilized or moved away temporarily (such as when the person finds new employment or achieves economic stability), the perception of the problem becomes less acute; the “frequency” decreases. This variation in the magnitude and/or frequency with which social problems affect individuals is a useful theoretical concept for social work professionals, as it allows for a better understanding of how problems evolve over time.

In this context, it is also important to consider the duration of the social problem. Longer-lasting problems tend to amplify the perceived intensity or ‘frequency’ of the issue, whereas shorter-duration problems may be experienced as more transient or less severe. However, this increase in perceived intensity should not be understood as strictly linear or indefinite. In some cases, prolonged exposure to a social problem may lead to processes of perceptual adjustment, whereby the problem becomes part of the individual’s perceived status quo. In such situations, while the underlying condition persists, its perceived “frequency” may stabilize or shift, and other associated problems may emerge as more salient at different moments in time. Here, ‘frequency’ can be understood as a metaphor for intensity, representing the perceived magnitude of the problem at any given moment. Focusing on both intensity and frequency thus provides social work professionals with a more nuanced framework to assess behavioral patterns and anticipate how social problems may evolve over time, helping to plan timely and effective interventions.

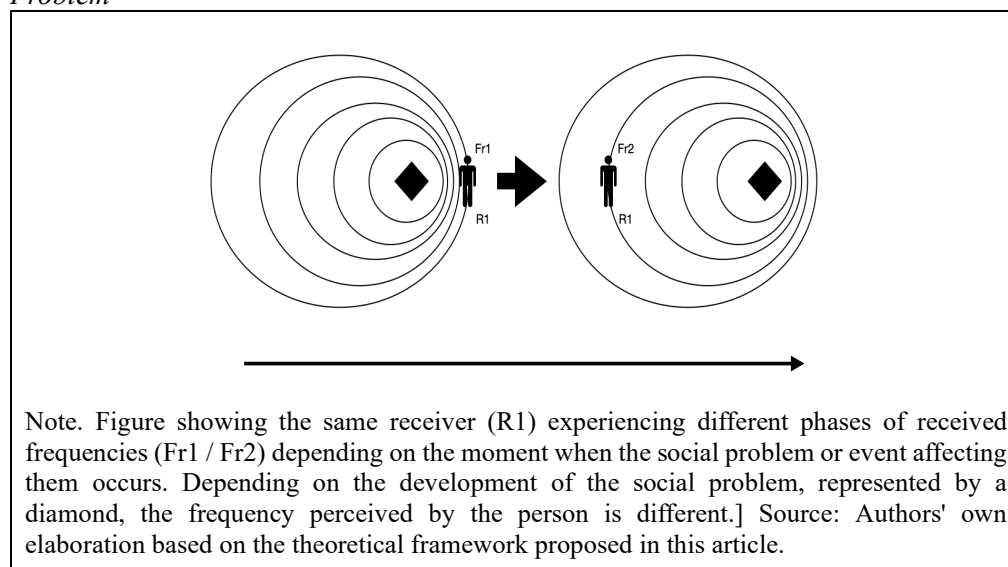
Moreover, this analogy introduces the idea of the subjective perception of time and experience in social problems, which is interesting because various studies indicate that psychosocial distress alters time perception, making it seem more prolonged (Rey et al., 2017; van Hedger et al., 2017). In physics, the perceived frequency depends on the relative movement between the emitter and the receiver. If we apply this idea to the perception of social problems, we might suggest that individuals perceive their problems differently depending on their emotional, economic, or social situation. Just as the Doppler effect intensifies when the wave source approaches, a social crisis could be perceived as more severe or urgent when a person is in a vulnerable situation. This approach provides a framework for understanding subjectivity in the experience of social suffering and how professionals might intervene more effectively by identifying these critical moments, aligning with established crisis intervention models in social work. Critical moments refer to points in time when the perceived intensity or ‘frequency’ of a social problem reaches a peak, such as immediately before a significant life disruption or during a heightened phase of psychosocial stress. By recognizing

these peaks, social workers can tailor their interventions to the specific needs and vulnerabilities of the individual, which may include early preventive measures, crisis management, or intensified support and follow-up, thereby maximizing the impact of their professional actions.

The use of the Doppler effect offers social work professionals a unique perspective on time and the perception of time, differing from traditional social work theories. While many conventional approaches focus on static assessments of structural or individual factors, the Doppler analogy allows for a dynamic understanding of how the perceived intensity of social problems changes over time relative to the individual's position and circumstances. This perspective highlights that social problems may be experienced as more or less urgent depending on their perceived approach or distance, enabling practitioners to anticipate critical moments and adjust interventions accordingly. By emphasizing the subjective temporal experience of service users, this framework provides a more nuanced tool for planning interventions and allocating resources effectively.

The Doppler effect analogy also underscores the importance of prevention in social work. While the individual may already be in a vulnerable situation, variations in the perceived 'frequency' or intensity of social problems can help identify early indicators or precipitants of a crisis. By observing these dynamic changes, social work professionals can anticipate critical moments and intervene proactively, thereby mitigating the impact of the problem before it fully manifests. This framework thus not only aids in understanding the subjective temporal experience of social problems but also provides a practical tool for the deployment of targeted preventive efforts.

Figure 1. *Variation of Wave Frequency Depending on the Development of the Social Problem*



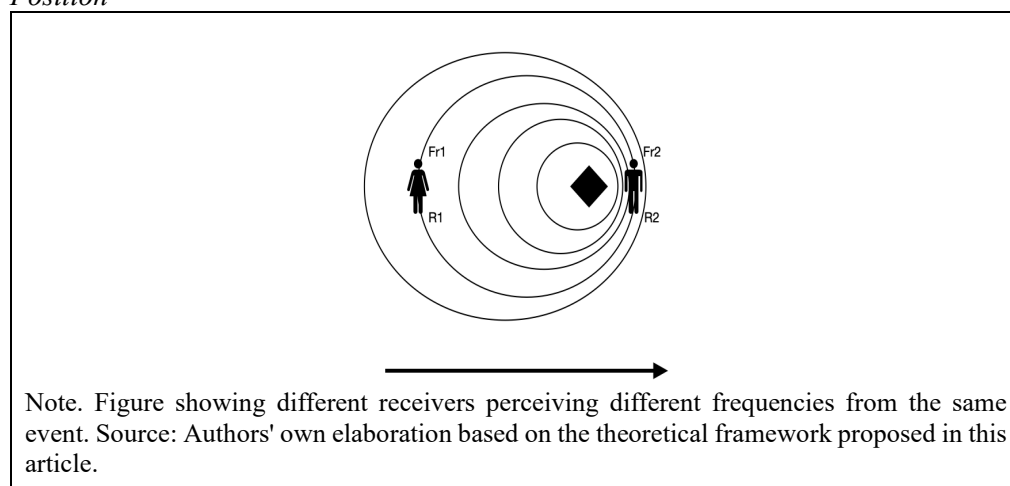
As shown in Figure 1, the same receiver, the individual, will experience different phases of received frequencies (Fr) depending on the stage of the social problem or event affecting them. In this context, it is also important to consider the social worker's role throughout this process. Social work will act in accordance with its core functions

(International Federation of Social Workers [IFSW], 2014, 2018), including the systematization proposed by Ballesterio et al. (2013). In particular, these efforts emphasize prevention as a means of reducing the frequency of the wave generated by the impending social situation. In this sense, social work and social intervention can be interpreted as an effort to “lower the frequency” of the problems individuals face, thereby alleviating their emotional and social impact. This includes direct engagement with the service user, as well as enhancing or providing the necessary tools to minimize the impact of the event, thereby shortening their time in the “right side of the plane.”

This approach also prompts reflection on the need for continuity in intervention (Haggerty et al., 2003), or at the very least, for follow-up by both professionals and the protection systems themselves. As depicted in Figure 1, the fact that a social problem has occurred over time does not indicate that the individual has ceased to perceive the wave frequency generated by it. Therefore, consolidating the follow-up and post-intervention evaluation phase is essential. Although this phase is commonly included within social work intervention processes (Davis et al., 2013) it is not always integrated into major public protection systems, which sometimes overlook the subsequent consequences of these social problems once the more complex phases of the issue have passed.

Another fundamental factor in the Doppler effect is the disparity in frequency perceived by different receivers based on their position relative to the same stimulus, connecting to the concept of relativity mentioned earlier. From a social perspective, this phenomenon mirrors situations where, faced with the same event, individuals perceive the stimulus, its effect, and ultimately the intensity differently. This underscores the necessity of empathy to properly understand the feelings of those we work with, acknowledging the need for individualization and the inherent subjectivity of these processes, key aspects highlighted in both international and national ethical codes (Figure 2).

Figure 2. *Variation of Perceived Wave Frequency Depending on the Receiver's Position*



As illustrated, faced with the same event, each receiver perceives a different wave frequency. The difference in frequency is conditioned by each person's individual and

unique way of perceiving such events. For social work and related disciplines, this highlights the importance of understanding the individuality of each person we work with during service provision. In this context, the wave frequency is influenced by intrinsic elements of the individual, which can be identified through what De Robertis (2006) defines as the “social bond.”

This approach also allows us to consider how extrinsic situations surrounding the individual affect their positioning and, consequently, the frequency they perceive. The perceived frequency (F_p) is therefore influenced by the individual's social situation (SS^o), the different available social protection systems (Syst.P), and the frequency or intensity (F) of the event itself:

$$F_p = F \frac{SS^o}{\text{Syst. P}}$$

Considering this, each person can perceive their position within the wavelength based on their individual social situation and the various programs, services, and benefits available in their environment. This leads us to understand that factors such as rising unemployment in a certain area, increased taxation on specific products or services, or the implementation of certain policies will position the individual at a point on the wavelength determined by these elements—areas where social work focuses its intervention.

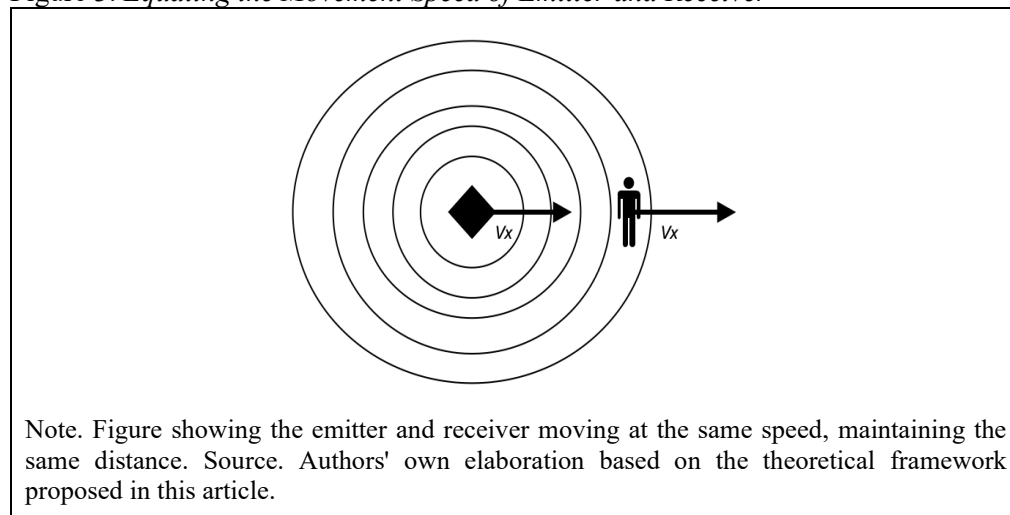
Finally, we cannot overlook the predictive nature of the Doppler effect in certain fields. As discussed, in astrophysics, this phenomenon allows us to determine the trajectory of an object through the light it emits, with blue indicating an approaching object and red indicating one moving away. This proposal emphasizes this preventive aspect, enabling the perception of the narrowing of the wave that may affect individuals, families, groups, and communities we work with. Until now, we have referred to receivers in static situations where the social problem moves towards them. However, as primary research on the Doppler effect shows, the speed or movement of the receiver has a determining effect on the frequency they perceive. It follows that the movement of the individual, understood as the provision of personal and technical resources in the face of an impending or perceived social problem, will significantly influence the frequency or intensity with which they experience the issue, aspects that social work can directly impact. Importantly, this movement is not only for the individual's own sake but occurs within their environment(s), highlighting the interaction between the person and the multiple systems surrounding them. This perspective aligns with the Person-in-Environment approach, providing a solid conceptual grounding for applying the Doppler Effect analogy in social work practice.

At this point, it is important and relevant to recognize the influence of extrinsic, structural, or macro factors, which must be addressed to the extent possible under ethical mandates to promote social justice, uphold human rights, and encourage self-determination and participation (IFSW, 2018). These macro factors refer to the broader social, economic, political, and institutional conditions that influence the individual's environment and the development of social problems. In our figures, these factors determine the individual's position along the perceived frequency spectrum, illustrating how systemic conditions can intensify or mitigate the impact of social issues. Recognizing macro-level influences helps social workers understand the structural context in which clients live, anticipate constraints, and design interventions that

account for external pressures. Additionally, attention must be placed on micro-level processes, evaluating weaknesses and strengths, and enhancing or providing the necessary tools to “modify their movement.” Micro-level processes involve assessing the individual’s strengths, vulnerabilities, and coping capacities, as well as their interactions with immediate social supports. While this may seem obvious, it often represents a weak point in theories inherent to sociology, psychology, or even social work, where explanations are limited to either macro or micro factors, typically due to paradigms that pre-establish this artificial division in practice. By integrating both levels, practitioners gain a comprehensive understanding of clients’ needs and can intervene in ways that are sensitive to both the systemic context and the individual’s personal experience.

Moreover, when both emitter and receiver move at the same speed, the distance between them remains constant, causing the Doppler effect to disappear and resulting in no variation in the perception of the light or sound. This principle is useful in highlighting the challenge of maintaining, as far as professional capabilities allow, the distance between these social complications and service users through our own resources and the various systems and services in which we intervene (Figure 3).

Figure 3. *Equating the Movement Speed of Emitter and Receiver*



Conclusions

The use of the Theory of Perceived Frequency as an analogy of the Doppler effect draws inspiration from natural science to offer new perspectives on social problems and their intervention. This approach reinterprets intrinsic aspects of social work from an innovative standpoint.

Within this proposal, several key aspects stand out. Similar to the physical phenomenon, the perceived intensity of a social problem varies over time. In the initial phases, the emotional impact is higher; however, over time, even though the crisis may recede, its effects can persist subtly. Therefore, it is essential not only to address the problem at its critical moment but also in subsequent phases when the intensity has decreased, as the effects still linger. This reinforces the idea that social intervention should be a prolonged, proactive process, adapting to the different stages of a problem.

Additionally, this approach prompts reflection on prevention, a crucial aspect of social work. Just as technology has been developed to anticipate dangerous or catastrophic situations like severe weather events, social work professionals should consciously evaluate extrinsic dangers such as rising unemployment, discrimination, or violence in the populations where they work. By being attentive to these external factors, it is possible to prevent situations of discomfort at community, group, and individual levels, as they will later impact the population, especially the most vulnerable or those with fewer means to face these social problems.

Another key aspect is the variability in the perception of social events, influenced by both personal and contextual factors. The Doppler effect reminds us that the perception of a wave depends on the relative movement between observer and source. In the social realm, this invites reflection on how individuals perceive social problems differently depending on their situation, resources, and environment, recognizing that two people facing the same problem can perceive it very differently.

While the Person-in-Environment perspective already emphasizes the interaction between individuals and their contexts, the Doppler effect analogy adds a dynamic component, illustrating how the perceived intensity of social problems fluctuates over time and relative circumstances. This allows social workers to identify peaks in urgency, anticipate critical moments, and adjust interventions accordingly, providing a more nuanced and temporally sensitive understanding of client needs.

Overall, under this proposal, social intervention is interpreted as an attempt to “lower the frequency” of the problems individuals face, alleviating their emotional and social impact. In this, the facilitating role of social work is paramount. This encompasses established functions such as prevention, direct intervention at critical moments, continuous evaluation to adjust strategies, and brokering resource management to strengthen communities against social challenges.

For future research, it is suggested that the explanations offered by the Theory of Perceived Frequency be examined not only as a conceptual tool but also as a way to strengthen how scholars integrate theories from both the natural and social sciences in their work. By illustrating complex social dynamics through an accessible physical analogy, this framework may help researchers and practitioners, particularly those with little or no familiarity with the Doppler Effect, to reinterpret social problems, refine analytical approaches, and design more responsive interventions. In doing so, it reinforces the complementarity between natural and social sciences and highlights the potential significance of interdisciplinary thinking for advancing social work research and practice.

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