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The Measurement of Time and Psychotherapy

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Abstract: Time is a fundamental dimension in psychotherapy. If we extend our reflection on time to the field of philosophy, we encounter St Augustine's analyses of time. A significant statement by Augustine is that it is not possible to measure time. It may seem strange that a contemporary scientist, C. Rovelli, affirms the same thing, drawing on the work of Galileo and Newton. This thesis, which is important for the history of science, is also important for psychotherapy. The fact that time cannot be measured in quantitative terms leaves more scope for a qualitative 'measurement', one that encompasses joy and pain, repetition and creativity – precisely the elements we deal with in psychotherapy.

TIME AND PSYCHOTHERAPY

Ever since I became a psychotherapist, I have often reflected on how time is a fundamental dimension of my professional experience. A session with a patient lasts 50 minutes, and those 50 minutes must be well spent. For the patient, sessions take place once a week, and there is a gap between one session and the next. The course of therapy as a whole, then, can be long or short: if it is short, it is considered a success; if it lasts beyond a certain point (how long?), it can raise doubts – in the patient and/or the therapist – about its effectiveness. During the session, the patient talks to us about their life, about what they are experiencing today and what may be causing them distress; about what makes them anxious about the future; and about what happened in the past that they cannot forget.

For the patient, the time spent in the session is a special time, distinct from the rhythm of ordinary life; a time from which they expect positive and significant changes across the whole of their life. But for me, as a therapist, in a different way, it is also a special time – a time in which I am tested on my ability to help, my resources and my limitations. Taking our cue from our Greek forefathers, we might say that whilst the time of life is often (fortunately not always) a 'chronos' – a time that flows by without bringing anything new – the time of therapy is a 'kairos', a time favourable to novelty, to the new that is awaited but which may or may not be seized. Indeed, the therapist's task lies precisely in doing everything possible to ensure that this time is truly a 'kairos' and does not degenerate into a mundane 'chronos'.

The time we are discussing here is time as it is experienced, not time in itself as studied by science. These are two different perspectives, but they are by no means entirely separate. Even the way we experience time depends on the framework within which we place it, and that framework is our worldview. Thus, my reflection on time in psychotherapy has led me to reconnect with the philosophers who have explored the subject of time. Foremost among them is Aurelius Augustine (354–430 AD). In the second half of his life, Augustine was a monk at and later became Bishop of Hippo, a city in Roman Africa. Yet in his writings, particularly in the *Confessions* – which we may regard as the first autobiography in European literature – he does not forget that he is also a philosopher. Whilst meditating on the eternity of God, Augustine reflects on the human experience of

time, offering a precise and rich phenomenological description of it. From the perspective that concerns us here, there are two key points made by Augustine.

Firstly: we are always in the present. When we speak of the future, we are always in the 'today', but we project ourselves towards what we presume will be; as for the past, it is in reality the memory of something that has been, but which is no longer here today. "It would be correct to say: there are three tenses: the present of the past, the present of the present, the present of the future. These three forms exist in the soul; I see no possibility elsewhere: the present of the past is memory; the present of the present is direct intuition; the present of the future is anticipation' (St Augustine, (2003) *The Confessions*, p. 569, Milan). Time is thus shifted from its objective dimension – the movement of the stars, as it was said in Augustine's time, or the Earth's revolution round the Sun, as we would say today – to a dimension that concerns our mind: "From this it seemed to me that time is nothing other than extension: of what, I do not know, except perhaps of the soul itself" (St Augustine, 2003, p. 579).The English word 'extension', however, might be misleading: Augustine does not mean something static, but an activity: 'distensio animi', an expansion of the soul, or of the mind, as we would say.

The second assertion is: time cannot be measured. To measure space, Augustine observes, we use a unit of measurement – the arm's length – which is the same for everyone (at least within the confines of the Roman Empire; we would say 'a metre' or 'a yard') and which is always the same. But if we wish to measure time, what unit of measurement shall we use? If, for example, I wish to measure the duration of a poem I am reciting, it seems I could take the syllable as my unit of measurement (the short syllable, given that for the Latins the text of a poem was made up of short and long syllables), but the short syllable, too, flows through time; it vanishes immediately as I pronounce it. The unit of measurement is therefore lacking. 'What, then, do I measure? Where is the short syllable that should serve as my measure? Where is the long one that I wish to measure? Both gave forth their sound, flew away, passed; they are no more…' (St Augustine, The Confessions, p. 583). And yet it seems indisputable that we measure the duration of different times. Let us say, for example, that one event lasted longer than another. Perhaps we can say that there is another mode of measurement, distinct from the one that compares a larger quantity with a smaller one and determines how many times the latter is contained within the former, so as to be able to express this measurement as a number. The measurement of time is something qualitative, something that takes place within the very experience of time itself, within that 'distensio animi' which is, in fact, the temporal dimension. 'Sentiendo metimur' – we measure time as we perceive it, says Augustine. If we want a quantitative measure, we must refer not to time itself, but to a constant movement, against which we compare the movement that interests us – let us suppose that of a walk or a journey. The Greeks and Romans had identified this constant movement in the sand flowing through an hourglass; the medieval thinkers d it in the movement—which was, in reality, rather approximate—of the clocks in towers and bell towers. Finally, modern thinkers identified it in the more precise movement of pendulum and balance-wheel clocks. In all cases, the necessary reference point, the unit of measurement, is no longer in time, but in space.

TIME AND PHYSICS

Augustine's assertion struck me as surprising, yet well-founded. However, his interests were religious, not scientific. I wondered whether his argument would still hold up in the context

of modern science. Hence my astonishment at discovering the same conclusion in a scientific text such as C. Rovelli's *Reality Is Not What It Seems* (Milan, 2014). Let us hear what Rovelli has to say: " Time features in almost all equations of classical physics. It is the variable traditionally denoted by the letter *t*. The equations tell us how things change over time, and allow us to predict what will happen in the future…" (Rovelli, p. 156). The first person to establish that the motion of objects on Earth follows certain laws, which can be expressed in the form of equations, was Galileo; indeed, it was he who formulated the law of uniformly accelerated motion, that is, the motion by which bodies fall from a height to the ground on Earth. "Galileo needed two measurements: the height of the object and the time; he needed a clock". Galileo himself describes the experiment he devised to measure the speed of a body ("a ball of extremely hard bronze, well-rounded and smooth") as it descended along an inclined plane. He explains that he built a clock himself, evidently more precise than those available at the time; a water clock, such that the elapsed time was measured by the volume of water that had fallen into a receptacle. Equal volumes of water meant equal times; double volumes, double times, and so on. Aware of the experiment's importance, Galileo emphasises that he verified the relationship between the distances travelled by the ball and the volume of water collected in the vessel on several occasions, and that he always found it to be constant.

And so Galileo was able to determine the proportion between the times taken and the distances travelled.

Rovelli supposes – I believe in order to link two discoveries that Galileo, however, kept separate – that things went a little differently. Years before this experiment, Galileo had identified the way to build a truly accurate clock: he had discovered that the oscillations of a pendulum have the same duration, even if they cover greater or lesser distances. Legend has it that Galileo realised this property of the pendulum whilst observing the oscillations of a large chandelier hanging in a nave of Pisa Cathedral. And how did Galileo establish that all the swings of the chandelier had the same duration? By counting how many beats of his pulse corresponded to each swing. But how did Galileo know that the same amount of time elapsed between one pulse beat and the next? Evidently, he took it for granted – in other words, he trusted his own perception. Rovelli continues: "Not many years after Galileo, doctors began measuring their patients' pulse rates using a clock, which is nothing more than a pendulum. So, we use the pulse to ensure that the pendulum is regular, and then the pendulum to ensure that the pulse is regular. Isn't that a vicious circle?...In reality, we never measure time itself— —we measure physical variables…. And we are always comparing one variable with another…. It is *useful* to imagine that there exists a variable $\underline{t}$, the 'true time' that underlies everything, even if we cannot measure it directly…..In other words, the existence of the variable 'time' is an assumption, not the result of an observation… It was Newton who understood all this… Newton explicitly states, in his book, that we cannot measure 'true' time t, but if *we assume* it exists, we can construct a highly effective framework for understanding and describing nature." (Rovelli, pp. 57–58). And here is the surprising thing: centuries later, and using very different languages, the theologian Augustine and two great scientists—the pioneers of the modern age—agree on one conclusion: time in itself cannot be measured. Although, as is clear from the final sentences quoted from Rovelli, there is no reason to doubt that today is the year 2026 AD (that is, that the Earth has completed 2026 revolutions around the Sun since the day on which, presumably, Jesus of Nazareth was born), nor can any of us doubt that we are the

age indicated in our birth certificates. But from the perspective of our experience of time, as we shall see shortly, I believe that the fact that time cannot be measured is significant.

TIME. MEASURE AND EMOTIONAL QUALITY.

Time, therefore, is not measurable in the quantitative sense of the term, as one measures space or the weight of an object: that sort of measurement which can be expressed as a number. But, since we know what a long time or a short time means, there is another measure of time, a qualitative measure, which we make at the very moment we experience time ('sentiendo metimur', as Augustine puts it). Precisely because we are in the realm of quality, the awareness of time seems to me to be strongly connected with another qualitative dimension: that of pleasure and pain. To experience time means to experience it with a positive or a negative feeling. And this strikes me as highly relevant to our work as psychotherapists. I believe that the negative experience of time is in turn linked to time as inevitable repetition, whilst the positive experience is an expression of time as possible change, as possibility and therefore, ultimately, as freedom.

To be honest, perhaps the ultimate motivation for writing this article lies in my resistance to the process of digitalisation in which we are immersed today. Digitalisation means making something quantifiable, that is, transforming it into a quantity. Is it possible that there is nothing left that remains qualitative, and refuses to be transformed into quantity? Two authors as different as Augustine and Revelli tell us that this 'something' does exist, and that it is very close to our experience; indeed, it forms the very fabric of our experience: it is time. And if it lies within our experience, it will surely have something to do with the practice of therapy. It is no coincidence that E. Berne, the psychiatrist who devised Transactional Analysis, focused on time, particularly on two occasions: in his reflection on the life script (indeed, the script is precisely the experience of time as repetition) and in his analysis of the structuring of time. That is, the way in which we organise our time with the unconscious aim of never running out of a supply of 'strokes', naturally in the sense of positive stimuli. (Berne, E., 1971)

I approach this from a slightly different perspective, namely by studying how the experience of time changes, in the here and now, depending on whether it is a 'healthy' experience, or one marked to a greater or lesser extent by psychological distress. The 'disturbed' experience of time is characterised by repetition. If we consider our clinical experience, and two of the most common and debilitating conditions we may encounter – depression and obsessive-compulsive disorder – we find confirmation of this assertion. A person suffering from depression, even if they experience moments of respite, knows that the distress will return and dominate long days: the future, therefore, excludes the possibility of change. A person living with obsessive-compulsive disorder experiences certain moments in time as utterly repetitive: the compulsion to perform an act or formulate a thought, the rejection of that act or thought, and the return of the compulsion. And so on ad infinitum, unless – though it is not clear how – a way out emerges. The overall perception of one's own time, in both conditions, is rigidly determined. It is like this and will always be like this.

This experience can also be reversed in psychotherapy: as the grip of the symptom loosens, the patient's overall perception of time changes.

It is worth adding that repetition is not always pathological. We can recognise the value of the past, and we can relive it in our memory. In that case, the past serves to bring the present to life, provided it does not, through nostalgia, turn into a sort of migration from the present to the past. A healthy experience of time is, first and foremost, fully immersed in the present. It is also open to following the trail offered by the past, but it also recognises that the future can be new and different. 'The virgin, the lively and the beautiful today', says the poet.(The original text, of course, has a different rhythm: 'Le vierge, le vivace et le bel aujourd'hui', Mallarmé, 1898). Negative repetition and the opening of the present to the future are emotionally connoted in very different ways: sadness or, at most, resignation in the first case; joy, and perhaps surprise, in the second.

I have addressed these themes in another article, in which I present some clinical cases that bear witness to this change in the course of therapy (Ricardi, F., 2023). Here I prefer to recount an episode, seemingly insignificant, which provides a vivid insight into the construction of time (human time) and its essential emotional connotation.

I am currently treating a 40-year-old woman who is very intelligent but plagued by certain repetitive behaviours, such as frequently signing up for cultural or otherwise interesting activities, only to cancel them shortly afterwards because she discovers one reason or another that would make it (or so it seems to her) too difficult to take part. Her job often involves commitments that are communicated to her at the last minute, and this has sometimes forced her to cancel a therapy session. Some time ago, I received an email from her in which she wrote that, given the problems she has in keeping to the scheduled therapy sessions, she felt it would be best to put the therapy on hold . I replied that when it comes to therapy, we often have conflicting feelings – a desire to attend, but also a reluctance – and so we must be careful not to act too hastily on that second feeling and call the whole thing off. As for her unexpected commitments, it's enough for me to be given a day's notice. The next day, I received an email beginning: "Thank you for your availability…" I was making myself a coffee, so I put off reading the rest. In the meantime, my imagination was running ahead, anticipating the email's content; I must confess that, after the thanks, I pictured a 'but…' followed by a refusal; and I began to think about how to reply. After my coffee, I went back to reading it, and discovered instead that the patient, after thanking me, wrote that she was pleased to be able to take advantage of my availability, and would therefore continue with the therapy. Something important happened in this little episode: the patient could have opted for what she was now accustomed to doing – withdrawing from a commitment she actually wanted – but instead she chose what was unusual for her, yet possible, and which will in turn open up new possibilities. In the first case, her time would have remained marked by repetition and dominated by feelings of pain and anger, whilst it is reasonable to think that in the second case, her experience will tend more towards satisfaction and hope. It is interesting that, at first, I had allowed myself to be influenced by the patient's habitual behaviour, and had anticipated repetition rather than novelty in my mind. Furthermore, in the brief sequence I have described, the patient and I had each, in our own way, constructed what we might call the 'cell of time': attention to the present moment, reference to the past (memory), and expectation and anticipation of the future. (Do we recognise the 'distensio animi' of which Augustine speaks?). This lived experience of time is characterised by emotion: a negative, unpleasant feeling regarding repetition, and an overall positive feeling regarding the choice of a new possibility.

The fact that time cannot be measured, in my view, highlights the significance of this qualitative – rather than quantitative – realm, in which emotional nuance, an essential element of human life, comes to the fore.

CONCLUSIONS

Psychotherapy operates using interpersonal communication as its tool, drawing on all the modes of language (verbal and non-verbal) typical of human communication. Moreover, it is now recognised that the normal functioning of our brain is based not only on its biological structure, but also on the way in which the people who made up the natural environment in which the individual grew up have interacted with it. The human brain is, in fact, a relational organ, which develops as it enters into a relationship with the world. The physical determines the psychological, but the psychological reacts upon the physical, to the point of shaping it (Schore, A.N., 2019; Kandel, E.R., 1983; Cloninger, C.R., 1994b; NIMH, 2021). This occurs during a person's development, but it can also take place if that same person decides to 'repair' some part of themselves by establishing a meaningful relationship with another person. This is psychotherapy. This relationship involves the two factors we have identified: time, and its emotional connotations, which bring with them pleasure and displeasure, joy and pain.

The therapeutic process is a journey the patient undertakes through their own history. This process, which compares what is currently happening in a person's life with what that same person carries with them from their past, is not merely a cognitive exploration. It is a process in which the individual brings themselves into play – the difficulties they have experienced, the responses they have managed to offer, and their desire for change. This is the prerequisite for the recovery of one's own potential, which remains present even if obscured by past negative experiences.

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