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## Intangible Measures

Sara Kapadia

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# Intangible Measures

## **Abstract**

In order for you to read these very words many things must occur: thoughts translated into words, then transformed from typing to binary code and saved to an online file. Several iterations later (digitally, physically and virtually) a tangible document is produced in The STEAM Journal, Volume 1, Issue 2 that can be read. The multitude of submissions, and the final selection of stellar works you see here all travelled through a hidden world of numbers, digits and sequences and were labelled over and over with numerous symbols.

## **Author/Artist Bio**

Sara Kapadia is the founder of The STEAM Journal. As an academic and educator and currently a Ph.D. Education student at Claremont Graduate University (CGU), Sara has formed a transdisciplinary approach to her study and work. Sara's doctoral research focuses on the intersections of science and art from early childhood through to adulthood. Prior to embarking on a doctoral degree, Sara worked at Caltech (California Institute of Technology) as an early childhood educator for several years, where she specialized in integrating science and art curriculum for young learners. With Bachelors of Education in Science from Cambridge University; a Masters of Arts in Social Justice, Social Policy and Education from University of London and graduate study at Oxford University Sara has had a wide range of academic experiences. Sara has been the recipient of several awards and fellowships. Currently Sara is a research assistant at CGU focused on STEM education. As an evaluator Sara was the qualitative lead for a multi-year evaluation project for an early childhood family center that serves underserved communities. Sara has also been a teaching assistant for an Art, Science and Technology course at Harvey Mudd College. As a writer, dancer and artist, Sara has shown her work in the U.K and U.S., and her artwork has been published in magazines and a book. Currently Sara is working on her dissertation work for her doctoral degree and is looking forward to researching STEAM

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## **Intangible measures**

*Sara Kapadia*

In order for you to read these very words many things must occur: thoughts translated into words, then transformed from typing to binary code and saved to an online file. Several iterations later (digitally, physically and virtually) a tangible document is produced in The STEAM Journal, Volume 1, Issue 2 that can be read. The multitude of submissions, and the final selection of stellar works you see here all travelled through a hidden world of numbers, digits and sequences and were labelled over and over with numerous symbols.

Words are symbols, and numbers are symbols... what do they symbolize? What is four, 4, III, IV? Communication is often seen as fundamentally human. Susanne K. Langer (1954) fluently stated

“the power of understanding symbols, i.e. of regarding everything about a sense-datum as irrelevant except a certain form that it embodies, is the most characteristic mental trait of mankind. It issues in an unconscious, spontaneous process of abstraction, which goes on all the time in the human mind: a process of recognizing the concept in any configuration given to experience, and forming a conception accordingly. That is the real sense of Aristotle’s definition of man as “the rational animal” (p. 58).

Over 350 years ago René Descartes suggested that animals were machines and that humans, because of their language, were superior. This view became known as ‘cartesian dualism’, Descartes’s (1637) idea began with the one thing he could be sure of, his own existence (cogito ergo sum), “I think therefore I am”. Noam Chomsky, the great linguist brought the idea of ‘deep structure’ being common to the grammar of all humans this is the creating of a message, and a meaning according to the grammatical structure (Chomsky, 1957). This innate facility within human beings is thought of as the reason for success of human language.

Humans can only ever understand another individual human’s mind partially, but never fully. One of the prominent, if not dominant, ways we do this as humans is through the use of communication. Language, the most outstanding example in humans of cultural transmission, is,

as we know it restricted to humans. However, we cannot be certain that non-human animals do not have a language as such. It is stating the obvious that we cannot understand exactly what they communicate to each other, however they may indeed have mechanisms of language, that are just different in form to our own.

So if we are uncertain if animals have a language, what about numerical awareness? Tennesen (2009) reports on research that points to the notion that animals can in fact count, discern between amounts and have a more advanced number sense than previously thought. But what about the quantified self? Is this a uniquely human ability, to collect data and create a quantified self-profile? Humans are inherently connected to numbers. Surgeon, author and inventor Leonard Shlain has described numbers as the precise metaphor for sequence, and true progression in time and space. “Sequence is also the very crux of the language of numbers” (Shlain, 2007, p. 400). Our organic lives are built on progression, milestones and markers that we place along the way. The term ‘quantified-self’ is also a movement (Singer, 2011) led by editors of Wired magazine, that are organizing the community worldwide with international events, and a guide to self-tracking tools (Quantified Self Labs, 2012). The need to create quantified selves is becoming ever more embedded into this era, and while some find this to be positive others question the necessity, as Cohen (2014, February 5) states “perhaps the self you really want to know, and that always eludes you, is the one that can’t be quantified.”

This publication will be annotated publically, privately on a database, on several cloud-based files and ultimately be identified by a number when searched. Numbers, numeral, figures and digits...the words that describe them are not as succinct, as elegant or as precise as the symbol itself. The quantified self is a synthesis of a large body of data, and likewise this issue is an amalgamation of many ‘selves’ transformed into articles, artwork, reflections, field-notes and more.

As you peruse the array of writing and images in this issue, maybe you can stop and ponder, as I do, upon the numbers you come across Numbers... ultimately, they always find a way to be so intrinsically rooted in so many aspects of our lives...

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