

Validating the Crisis, Or the “Technology contra Humanities” argument during COVID-19 through Formal Proofs of Language

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ABSTRACT

The context of the so-called “crisis of the humanities” is further tested against the backdrop of the COVID-9 pandemic crisis. Compounding variations or nuances of this premise infer that the crisis is true, which means that there is a lessening emphasis on the humanities. There is, however, a need to justify how this argument can stand on itself through an inquiry of its validity. The descriptive nature of its claim further begs the presupposition that a crisis is such because of an apparent disparity of the humanities and the sciences stemming from various charges. This paper thus takes over from this problem and utilizes the logical formal proofs of language to assess the underlying assertions being made. It carries on its tasks through a steady establishment of valid proofs that ground the very nature of the crisis.

ARTICLE HISTORY

Published September 30th 2021



KEYWORDS

Covid-19, Technology, Humanities, Logic, Formal Proofs

ARTICLE LICENCE

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1. Introduction

There is a growing descriptive diagnosis of the humanities as being in “crisis.” The description synthesizes arguments such as 1) the declining of the humanities’ prestige, 2) the defunding of programs in many departments, 3) the poor employment rate of the graduates, 4) little practical use or a “waste of time,” 5) decreasing tangible value especially to that of the philosophy, literature, fine arts, 6) economic recession pressures, 7) the corporatization of higher education, and 8) other “constellation of forces that, worse than a crisis, seem to portend the very end of the humanities” (Jay, 2014). Another way to look at this is 9) through the context of “neoliberal capitalism and of the consolidation of the metrics-driven, corporate, managerial university” (Frassinelli, 2019). Complementary to this is the inverse proportionality of the leaning towards technology: “Study in the humanities disciplines seems backward looking and without any utility in an age of exploding technology” and that in effect, “students are flocking to the science, technology, engineering, and mathematics (STEM) disciplines because, unlike the humanities, they are forward looking” (Jay, 2014). There is thus a close correlation between the two so that in the same way that the arts are also correlated to humanities, the idea of technology and its argumentation subsumes within it the scientific revolution of the future.

There is a middle strand of combining the priorities of both, or encountering Global North and South collaborative efforts for the Humanities and the Sciences (Berman & LeBaron, 2019). This is not to discount that the humanities have a role in technology and technological research, especially in nanotechnology (Ebbesen, 2008). But there is an original or fundamental difference in the approaches of the two, acknowledging technological systems as compromising the existence and value of the arts. C.P. Snow has aptly labeled this disparity as the “Two Cultures” (Snow, 2012).

During the COVID-19 pandemic, the so-called “crisis of the humanities” is caught with a further crisis that stretches the gap between the humanities and the leanings to scientific technology. Part of the “constellation of forces” that seem to describe an “end” is the humanities complicated relationship to the state and the concept of justice and democracy (De Chavez &

Varadharajan, 2019). An impending zugzwang that marks a thin demarcation between the choice to lean one at the expense of other choices is conspicuous and political matters complexify the issue by forcing options upon options to be tested (Kahambing, 2020a). The language of crisis thus pervades the present (De Chavez, 2020), and this in itself paves for critical inquiry concerning the validity of such claims. Placed in opposition to the technology, the relationship of the humanities to its technological counterpart becomes fraught with inquiries on performance management (Tomaselli, 2019). What the crisis seems to uncover is the insertion of further mediation from management. Management interventions include the proper handling of apparatuses and platforms. The pandemic's import, as well as the humanities' initial crisis of its own, has called for a grim conclusion that there is a lessening emphasis on the humanities.

This paper seeks to validate such a conclusion and uncovers some of the argumentations that are supported by current research to establish its truth value. At the outset, the radical presuppositions of the crisis can inform of a disjoint of technology taken in itself and its ramifications as opposed to the humanities with its inclusion of the arts. This disjoint is further labeled to be a disparity between the two with the existence of another crisis that is the pandemic.

2. Methodology

The paper employs the method of validation using formal proofs of language. It is a test to adequately consider the string of arguments for more efficient checking of validity. Elementary forms of argumentation or basic rules of inference can be accorded fairly well to this method while not limiting to these and possibly extending to rules of replacement. Accordingly, the extension of more power logical mechanisms for the method requires rules that permit "to infer from any statement the result of replacing any component of that statement by any other statement that is logically equivalent to the component replaced" whose "correctness of such replacements is intuitively obvious" (Cohen & Copi, 2014). The efficiency of this method runs more smoothly than the truth table method which requires many rows for different sample statements. In employing simple rules of inferences, "we can prove the argument valid by deducing its conclusion using a sequence of elementary valid arguments" (Cohen & Copi, 2014). Thus, the result of which can testify to the validity of the claims and how they can infer for the conclusion.

Constructing forms of validity are thus derived from valid arguments from propositions that produce an inferential sequence. The constructed forms of validity or proofs of language can also be done by juxtaposing similar argument forms through logical analogy and thereby the substitution instance or the "argument from the substitution of statements for statement variables in an argument form" (Cohen & Copi, 2014). In which case, the similarity is derived from an exercise of an established valid substitution instance that fits the argumentation of the crisis. The responsibility of the authors lie in the keen fitting of the arguments to the substitution instance.

For a better translation of symbolisms, propositions will be labeled accordingly. The variable P stands for the pandemic and its disasters. The variable M stands for management, the applications of social, political, or mechanical apparatuses. The variable T stands for technology, its relation to science and scientific mechanisms. The variable H stands for the humanities and its allies in art, philosophy, history, and the like. What we mean by 'humanities' here, to be precise, are the traditional forms of the field, which exclude the technological leaning of some of its strands such as the emergence of digital humanities along with its myriad of criticisms (Gold, 2012). And the variable D stands for the disparity between the humanities and technology. The variables work only on the occasions that they are applied in a proposition without regard for the others that are not mentioned: hence, avoiding the pitfalls of reasoning such as equivocation, amphiboly, and the like as fallacies of language. For a uniform understanding of the symbols, conditional statements or material implications are symbolized by ' \supset ', negations or dismissals by ' \sim ', disjunctive statements by ' \vee ', and conjunctive statements by ' \wedge '.

3. Result

Using the formal proofs in logic, the following arguments initially situate the troubling coordinates that infer for the lessening emphasis on the humanities in this pandemic. It operates on material implication, disjunctive, and conjunctive statements. The underlying arguments that support this are still indirectly accepted, though their inferential value can be seen in the further assertions.

1. $P \vee \sim M$
 2. $T \supset M$
 3. $\sim H \vee T$
 4. $(\sim P \supset \sim D) \cdot (\sim D \supset \sim T)$
 5. $P \vee \sim P$
- $\therefore \sim H$

The argumentations that support the conclusion follow from the succeeding string of valid arguments and thus establish a solid contribution to the argument. The rules established here extend to replacement modalities that more or less capture the proposition's nuances.

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| 6. $(\sim D \supset \sim T) \cdot (\sim P \supset \sim D)$ | 4, Com |
| 7. $\sim P \supset \sim D$ | 4, Simp |
| 8. $\sim D \supset \sim T$ | 6, Simp |
| 9. $\sim P \supset \sim T$ | 7, 8, H.S. |
| 10. $\sim M \supset \sim T$ | 2, Trans |
| 11. $P \supset \sim T$ | 1, 10, H.S. |
| 12. $(P \supset \sim T) \cdot (\sim P \supset \sim T)$ | 11, 9, Conj. |
| 13. $\sim T \vee T$ | 12, 5, C.D. |
| 14. $\sim T$ | 13, Taut. |
| 15. $T \vee \sim H$ | 3, Com |
| 16. $\sim H$ | 15, 14, D.S. |

The rules of inferences and replacement employed here are commutation (Com), simplification (Simp), hypothetical syllogism (H.S.), transposition (Trans), conjunction (Conj), constructive dilemma (C.D.), tautology (Taut.), and disjunctive syllogism (D.S.). Commutation enables the conjunctive and disjunctive statements to be turned around and transposition permits conditional statements to be turned around as well. Simplification reduces an argument by retaining the truth value of one variable. A constructive dilemma is a combination of two modus ponens arguments ($P \supset Q$; P , $\therefore Q$) whose conclusion is not resolved because it is caught up with two choices. A tautology asserts the equivalence of conjunctive and disjunctive statements by itself with itself. A hypothetical syllogism follows from the protasis of a conditional premise and an apodosis of another conditional premise. And a disjunctive syllogism is a denial of one of the two disjuncts while retaining the truth of the other disjunct. These rules are valid, no matter that they are ramified by certain circumstances hinged in their contexts. This valid order ultimately explains the sequence of argumentation to infer the conclusion.

4. Discussion

In order to explain the validity of the claims found in the argumentation sequence of the results, the following are the propositions that expound on the veracity of the conclusion. They are sequenced in number corresponding to their core arguments in symbols.

- 1) If the pandemic is a disaster, then this is correlated to the non-existence of proper management.

The pandemic has been identified as a 'disaster' (Kahambing, 2020b), and this, with an unprecedented scale of effects, has questioned proper management. For example, studies show that there are various means of effective management of a global pandemic, but the unavailability of related resources and studies hinders experts to optimize the existing management strategies being utilized (Kakodka, Kaka & Baig, 2020). The manifestations that improvement in the management of COVID-19 is deemed necessary with regards, for instance, to the appropriate medical equipment to use to help patients recover. The use of technology such as mechanical ventilation to Noninvasive Ventilation (VIN) is a good example of this. Studies show that VIN help reduces the severity of respiratory failure (Naaz, Ozair, Sahay, and Kumar, 2020). Another manifestation is the need for medical practitioners of further guidance in the use of such equipment in the management of COVID-19 such as chest radiography and CTs (Rubin et al., 2020).

- 2) If there is technology, proper management is a must.

The positive crux of technology is its potential to empower. Hence, to be able to maximize the power and benefits technology has to offer, proper management is necessary. To do so, many large companies conducted studies on how to maximize such potential. It was found out that top management linkages and technology strategies, as well as external or resource leverage, are the key to the effective utilization of technology strategy (Roberts, 2001). Technological systems, no doubt, are only as good as their usage and that the ends that determine them are also correlated to the user and creator. Ethical theories can well intersect with this for management supervision (Thompson, 2016).

- 3) There is a dismissal of the humanities with technology.

The humanities have been taken as a vital field for cultural and cross-cultural studies. But in the advancement of technology and the benefit it bears for humanity, the grandeur that humanities hold in research started to wane. Humanities research papers these days are labeled as ornamental and that their research findings do not pave way for innovation that may lead to the improvement of industry and commerce. On the other hand, researchers today who are inclined to science and technology findings are seen more significant. Technology research is deemed highly beneficial for the advancement and development of science and its prospects (Kahambing & Deguma, 2019).

- 4) It is the case that without the disaster that is the pandemic, we cannot see a disparity (of the humanities and technology) and that without a clear picture of this disparity, there is no need for further technology.

The abrupt emergence of the COVID-19 pandemic around the world demands a new response strategy coming from the government and other concerned local and national institutions. Being too unfamiliar with the virus, these institutions manage to create new mechanisms that allowed them to deal with the uncertainties and changes brought about by the pandemic (Janssen & van der Voort, 2020). To increase the chances of survival, various technological methods at the expense of humanities research were mechanized to lessen the contamination and control the surge in the number of infected cases. This is done through social distancing, the wearing of face masks, and the like. Some have also innovated and made their environment and houses free and unsusceptible by the virus, hopeful for a post-pandemic way of living (Megahed & Ghoneim, 2020). These initiatives proved that no country in the world is fully prepared for situations like this, acknowledging and highlighting the gaps that need to be filled. Hence, the world today seeks to develop and create new technologies that would improve the lives of the people amidst the pandemic. The technologies being referred to are broad in scope. This could provide means of treating the virus or the production of tools/things that will help people survive. These technologies are emphasized compared to the disparity that it has with the humanities (Brem, Viardot, & Nylund, 2021).

- 5) The crucial claim is that these propositions rest on the effect of the pandemic's existence or non-existence.

The pandemic has surely intervened in society's quotidian preoccupations (Haleem, Javaid & Vaishya, 2020). In healthcare alone, there is a high burden weighed by the existing medical system, high risk and overloading of medical shops, and disruption of the medical supply chain. There is also a disruption in the economic supply chain of products and a significant slowing down in revenue growth. Social effects can also be seen in the disruption of cultural, religious, and festive events. The closure of many establishments intersects with economic and social effects. Examinations are postponed, if not waived, and the service sector is losing grounds in proper service. The crucial changes that the pandemic has affected in the lives of the many reach global proportions. That being said, the propositions on the argument of technology and the humanities cannot help but adapt to the current scenario at hand.

With the above statements, the conclusive leap is that there is less emphasis on the humanities. To support such conclusion, the following arguments are added to infer from them a valid sequential thought-process.

- 6) Using commutation on proposition 4, it also holds that without seeing the disparity of the humanities and technology, there is no need for further emphasis on technology and that this is correlative of the claim that without the pandemic disaster, this disparity is hardly seen.

Within the COVID-19 context, technology through digitalization has further been applied as a source of reliance. In this sense, there has been a further need for "adopting digital technology and integrating it into policy and health care" (Whitelaw, Mamas, Topol & Van Spall, 2020). The emphasis on technology in the pandemic requires a "scale of coordination and data management" that can provide a "framework for the application of digital technologies in pandemic management and response, highlighting ways in which successful countries have adopted these technologies for pandemic planning, surveillance, testing, contact tracing, quarantine, and health care" (Whitelaw et al., 2020).

- 7) It can be simplified that the case of the pandemic is enough to impose itself as a conditional for the emerging disparity of the humanities and technology.

The pandemic is becoming a litmus test that allows for the revelation of the disparity that broadly captures the leanings of society. In such an underlying crisis, the disparity stands on the charge that "the humanities have become increasingly irrelevant in a world dominated by modern science and technology" (Arndt, 2007). One of its other direct effects is the well-known condition that "as hardly needs repeating, the Covid-19 pandemic poses [...] an already urgent crisis affecting the job market for humanities PhD.s" (Anderson & Kramnick, 2020). The prospects of students' trajectory in higher education are not the only thing that is affected here but of future teachers in the field. Those who can well aid in taking the pandemic head on through scientific and technological means are the most sought-after and are receiving more demands more than ever.

- 8) Similarly, it can be simplified how, without a proper investigation into such disparity, there would not be any plea for technological emphasis.

Standards in technological systems within the context of the disjoint between the humanities and technology are seen to adapt to emerging hybrid models that lean towards technological proposals (Ala'raj, Majdalawieh, & Nizamuddin, 2021). This reflects the preliminary insights about situating the humanities within a technological society (Janssen & van der Voort, 2020). Accordingly, there is "an avalanche of images from morning to night, via television, film, computer, and the rest of the mass media has smothered the humanities, not to mention literary culture" (Russo, 1998). Probing into this disjoint, a necessity arises on the technological side: "Computing and digitization are transforming not only the conditions of work for humanists but also the ways in which humanists think and their disciplines are configured. The digital world both enables and compels new ways of thinking" (Katz, 2005).

- 9) The two previous claims hypothetically support the further conclusive conditional leap that without the pandemic, there is no strong stress on technological means.

The urge for the advancement of technology, especially in public health has become an imperative that warrants a symbiotic integration into pandemic measures. That being said, “the integration of digital technology into pandemic policy and response could be one of several characteristic features of countries that have flattened their COVID-19 incidence curves and maintained low mortality rates” (Whitelaw et al., 2020). In effect, various technological improvements have been made as a way of furthering the benefits to be reaped on their application. Among such, World Economic Forums reports, are the online shopping and robot deliveries, digital and contactless payments, remote work, distance learning, telehealth, online entertainment, supply chain 4.0, 3D printing, robotics and drones, and 5G and Information and Communications Technology (ICT).

- 10) Given that technology must be handled with proper management, its transmutation can also hold that without proper management, there is no correct technological utilization.

The full potential of technological advancement is realized through appropriate management use of technological strategy (Roberts, 2001). But if such technology management will not be utilized properly the opportunities these technological strategies have to offer may be forfeited. In the same manner, technologies that are available today and have been developed as a response to the pandemic may be put to waste if they fall to unknowledgeable hands. For instance, many educational institutions today devise various means to carry out the educative process with the available technology, for example, the utilization of ICT as a medium for delivering instruction allows students to think critically and enhance their creativity. But such manipulation of technology requires a teacher with in-depth knowledge of ICT. If such an educator lacks the minimum requirement in the utilization of such technology, the opportunity that ICT can offer both to the teacher and the students can be in vain (Tejedor, 2021).

- 11) A huge leap is valid here: with the pandemic’s disaster due to mismanagement, it also follows that the disaster reveals an unbecoming utilization of technology.

That the pandemic uncovers an improper utilization of technology can be seen, for instance, in incoherent narratives and reportage. The government officials and scientists in social media elicited opposing public sentiments and reactions. Besides, political actors used social platforms to stage political disputes by challenging their opponent’s credibility and openly criticizing their decisions. These conflicting views and political chaos diminished people’s trust and confidence in them. The politicized nature of the views profoundly affected people’s behavioral responses to disobey COVID-19 health regulations and to disrespect government authorities. The spread of false information in social media as a technological apparatus escalated fear, panic, and confusion. It also became a platform to communicate overpriced protective equipment and unregulated products. The media also intensified the stigma and discrimination of foreign nationals whose countries have high cumulative incidence rates of the virus (Ruiu, 2020).

- 12) An uncanny conjunction exposes the pandemic disaster as an unbecoming utilization of technology and that without this disaster, the unbecoming utilization of technology would not have been stressed.

The unprecedented use of social media and digital technologies during the COVID-19 pandemic escalated cyber issues and threats among online users. These perils include internet fraud, scams, security breaches, privacy intrusions (Pandey & Pal, 2020), and the spread of inaccurate information and propaganda (Ruiu, 2020). Yet these repercussions of technology mismanagement call for the government to take countermeasures to improve the virtual ecosystem and to venture further technological advances. These actions include establishing security arrangements and policies, regulating the internet and digital activities, expanding internet-based services, bandwidth, and telecommunications infrastructures, maximizing online transactions, teleworking, and e-commerce (Pandey & Pal, 2020).

- 13) With the above claim, we can compare such to constructively resolve the dilemma and argue that the case is either that the unbecoming utilization of technology was stressed or we need stronger stress on technological means.

There was an immediate response to develop and implement pandemic strategies and data management systems. Countries like Singapore, South Korea, and Germany have adopted and integrated digital technologies to contain the virus. The use of digital devices, wearable technologies, QR codes, and mobile applications supported the process of contact tracing. Similarly, Sweden and China developed technologies that reported real-time clinical data (e.g. the status healthcare facilities and resources). While in Canada, USA, and Australia, online meeting platforms facilitated virtual health check-up among patients with mild COVID-19 and chronic diseases (Whitelaw et al., 2020). However, as technologies operationalized these mitigation strategies, it posed a problematic challenge on digital safety. Such include security breaches, misuse of private data, phishing, forgery, cyber-attacks, hacking, and fraud (Morales et al., 2021).

- 14) The statements on proposition 13 are a tautology that it is enough to say that there is an unbecoming utilization of technology.

Technology was made to make the lives of people easier (Roberts, 2001). The creation of such has the purest intention of assisting and changing lives but the overwhelming responsibility within the grasp of users may lead to technology's adverse effect. This happens if technologies are used inappropriately. In the context of professional ethics, professionalism allows people to determine the appropriate and the appropriate use of technology (Yeaman, 2004) but why is it that some professionals continue to utilize some technology knowing its adverse effect? A case can be stated concerning electronic fetal heart rate monitoring. This device intends to detect fetal stress that prevents compromising the fetus and decreases the chances of fetal morbidity but in the same manner, this device provides unintended consequences such as maternal morbidity (Freeman, 2007). Another valid case can be said of personal computers (PCs). The emergence of PCs paves way for a better opportunity in education as it provides various software and applications that would aid students in their study. Unfortunately, the skyrocketing prices of PCs limit this opportunity to those who can only afford it (Baran, 1995). The main idea here is that technologies were created to help, genuinely for good purposes, but these technologies too brought about adverse effects to people due to their mismanagement.

- 15) So it is with forwarding that there should be strong stress to technological means or there is less stress in the humanities.

The interest in humanities started to wane and the regard for technology-related studies grew dramatically (Thompson, 2016). Hence the support for the humanities has been moved to the peripheral among research enthusiasts. The continuous decline in fame that the humanities once hold has taken its toll that even students today do not see the significance of the study of humanities (Muller, 2016). The significant contributions of the humanities in shaping the lives of people and surfacing the depth of emotion in the preceding years to present have been left untouched in the library, filled with dust as a manifestation that it is least regarded today (Russo, 1998). We are starting to live in a society where we forget the past-the significant role played by humanities in developing the society (Russo, 2005), a society that unconsciously states that there is no need for humanities studies (Russo, 1998).

5. Conclusion

The conclusion from the foregoing asserts the lessening emphasis on the humanities. The inference that we get from the propositions before that validate the disparity that the humanities face against technology. With the variable of the pandemic and the mediation of proper management, the context of the so-called "crisis of the humanities" has been substantiated with assertions that put it on the edge of critical interrogation. These assertions lean towards the technological strand and with the prospect of mitigating and ultimately halting the crisis in itself, an underlying crisis that explains the fundamental disjoint remain to be the grounding by which the steady and starting mechanisms to solve the pandemic operate.

References

- Ala'raj, M., Majdalawieh, M., & Nizamuddin, N. (2021). Modeling and forecasting of COVID-19 using a hybrid dynamic model based on SEIRD with ARIMA corrections. *Infectious Disease Modelling*. 6, 98-111. <https://doi.org/10.1016/j.idm.2020.11.007>
- Anderson, A and Kramnick, J. (2020). "The Coronavirus Humanities: Two Leading Scholars discuss the virus, the future of knowledge, and the state of humanistic inquiry." *The Chronicle of Higher Education*. 6. Retrieved January 27, 2021 from <https://www.chronicle.com/article/the-coronavirus-humanities>
- Arndt, D. (2007). The Two Cultures and the Crisis in the Humanities. *Forum on Public Policy Online*. 2007(1), 1-18.
- Baran, N. (1995). Computers and capitalism: A tragic misuse of technology. *Monthly Review*. 47(4), 40-47.
- Berman, K., & LeBaron, M. (2019). Crossing Worlds: South–North Collaborations as Creative Encounters with Arts, Humanities and Sciences. *Critical Arts: South-North Cultural and Media Studies*. 33(3), 59-76.
- Brem, A., Viardot, E., & Nylund, P. A. (2021). Implications of the coronavirus (COVID-19) outbreak for innovation: Which technologies will improve our lives?. *Technological Forecasting and Social Change*. 163. <https://doi.org/10.1016/j.techfore.2020.120451>
- Cohen, C. & Copi, I. (2014). *Introduction to Logic*. 14th Ed. Edinburgh: Pearson Education Limited.
- De Chavez, J. & Varadharajan A. (2019). "Been Down So Long It Looks Like Up to Me": Rethinking the Humanities (in Times of) Crisis. *Critical Arts: South-North Cultural and Media Studies*. 33(3), 46-58.
- De Chavez, J. (2020). "... and beyond/Frighted the reign of Chaos and old Night": On the Humanities (in times of) Crisis. *Rupkatha Journal on Interdisciplinary Studies in Humanities*. 12(5), 1-6.
- Ebbesen, M. (2008). The role of the humanities and social sciences in nanotechnology research and development. *NanoEthics*. 2(1), 1-13.
- Frassinelli, P. P. (2019). Crisis? Which Crisis? The Humanities Reloaded. *Critical Arts: South-North Cultural and Media Studies*. 33(3), 1-15.
- Freeman, J. M. (2007). Beware: the misuse of technology and the law of unintended consequences. *Neurotherapeutics*. 4(3), 549-554.
- Gold, M. (Ed.). (2012). "The Digital Humanities Moments." In *Debates in the Digital Humanities*. (pp. 9-15). USA: Minesota Press.
- Haleem, A., Javaid, M., & Vaishya, R. (2020). Effects of COVID 19 pandemic in daily life. *Current Medicine Research and Practice*. 10(2), 78-79.
- Janssen, M., & van der Voort, H. (2020). Agile and adaptive governance in crisis response: Lessons from the COVID-19 pandemic. *International Journal of Information Management*. 55. <https://doi.org/10.1016/j.ijinfomgt.2020.102180>
- Jay, P. (2014). The Humanities Crisis Then and Now. In *The Humanities "Crisis" and the Future of Literary Studies* (pp. 7-31). New York.: Palgrave Macmillan
- Kahambing, J. G. (2020a). COVID-19, Natural vulnerability and zugzwang. *Journal of Public Health (Oxford, England)*. 10.1093/pubmed/fdaa186
- Kahambing, J. G. (2020b). Learning to Bury the Dead during COVID-19—Barbarism or Indigeneity?. *Prehospital and Disaster Medicine*. 35(6), 702-703.

- Kahambing, J. G. S., & Deguma, J. J. (2019). Reflecting on the Personality of Artificiality: Reading Asimov's Film Bicentennial Man through Machine Ethics. *Journal of Educational and Social Research*. 9(2), 17-24.
- Kakodkar, P., Kaka, N., & Baig, M. N. (2020). A comprehensive literature review on the clinical presentation, and management of the pandemic coronavirus disease 2019 (COVID-19). *Cureus*. 12(4), 1-18.
- Katz, S. N. (2005). Why technology matters: the humanities in the twenty-first century. *Interdisciplinary Science Reviews*. 30(2), 105-118.
- Megahed, N. A., & Ghoneim, E. M. (2020). Antivirus-built environment: Lessons learned from Covid-19 pandemic. *Sustainable Cities and Society*. 61. <https://doi.org/10.1016/j.scs.2020.102350>
- Morales, M., Barbar, R., Gandhi, D., Landuge, S., Bae, J., Vats, A., & Raskar, R. (2021). COVID-19 Tests Gone Rogue: Privacy, Efficacy, Mismanagement and Misunderstandings. *arXiv preprint arXiv:2101.01693*.
- Muller, H. (2016). The "Relevance" of the "Humanities". *The American Scholar*. 40(1), 103-118
- Pandey, N., & Pal, A. (2020). Impact of digital surge during Covid-19 pandemic: A viewpoint on research and practice. *International Journal of Information Management*. 55. <https://doi.org/10.1016/j.ijinfomgt.2020.102171>
- Roberts, E. B. (2001). Benchmarking global strategic management of technology. *Research-Technology Management*. 44(2), 25-36.
- Rubin, G. D., Ryerson, C. J., Haramati, L. B., Sverzellati, N., Kanne, J. P., Raoof, S., & Leung, A. N. (2020). The role of chest imaging in patient management during the COVID-19 pandemic: a multinational consensus statement from the Fleischner Society. *Chest*. 158(1), 106-116.
- Ruiu, M. L. (2020). Mismanagement of Covid-19: lessons learned from Italy. *Journal of Risk Research*. 23(7-8), 1007-1020.
- Russo, J. P. (2005). *The future without a past: The humanities in a technological society*. Columbia, Missouri: University of Missouri Press
- Russo, J. P. (1998). The humanities in a technological society. *Humanitas*. 11(1), 14-41.
- Snow, C. P. (2012). *The two cultures*. Cambridge: Cambridge University Press.
- Thompson, K. O. (2016). The Humanities in Higher Education and Research in Taiwan: Current State and Challenges. In *The Humanities in Contemporary Chinese Contexts* (pp. 77-88). Singapore: Springer
- Tomaselli, K. G. (2019). Humanities, Citations and Currency: Hierarchies of Value and Enabled Recolonisation. *Critical Arts: South-North Cultural and Media Studies: South-North Cultural and Media Studies*. 33(3), 16-29.
- Tejedor, M. R. (2021). Strategies for university training and innovation in times of pandemic. *IJERI: International Journal of Educational Research and Innovation*. (15), 248-259. <https://doi.org/10.46661/ijeri.5365>
- Whitelaw, S., Mamas, M. A., Topol, E., & Van Spall, H. G. (2020). Applications of digital technology in COVID-19 pandemic planning and response. *The Lancet Digital Health*. 2(8), 435-440.
- Yeaman, A. (2004). The Misuse of technology. *Tech Trends*. 48(5), 14-16.