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ON MAINSTREAMING PHILOSOPHY OF SCIENCE IN PSYCHOLOGY THROUGH "PSYCHOLOGICAL THEORETICS"

Seth Oppong

Department of Psychology, University of Botswana

The principal goal of psychological science is not application but theory. This is because a good theory yields accurate predictions and control, two preconditions for applications. Thus, good psychological science is one that produces good theories. Against the background of reproducibility crisis and the apparent non-existence of an integrated subfield of psychology addressing those issues, I submit *psychological theoretics* (or psycho-theoretics) as a potential solution. The scope of psychological theoretics is outlined and distinguished from other closely related subfields. It was argued that psychological theoretics has the potential to make a unique contribution to the advancement of good psychological science. It is also worth noting that even if the global community of psychologists might not be ready for psychological theoretics as a new subfield, the reforms proposed under its rubrics would still remain relevant today and in the future. Indeed, the question of whether it is completely new will surely be the subject of scientific debate.

Keywords: psychological theoretics; reproducibility crisis; theoretical psychology; philosophical psychology; philosophy of knowledge.

It is perhaps important to state from the very beginning that the paper does not assume that the quantitative methodology is the only useful approach in research (it recognizes the important role of qualitative and mixed methods designs in research). It also recognizes that the argument presented here may be seen as an attempt at

Seth Oppong, https://orcid.org/0000-0003-1977-5538. Correspondence concerning this article can be addressed to Seth Oppong, Department of Psychology, University of Botswana, Pvt Bag UB 00705, Gaborone, Botswana; e-mail: oppongs@ub.ac.bw.

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rebranding. Rather than denying or ignoring such critical feedback, I present these arguments as an invitation to other scholars of psychology to a discourse about the relevance of having a new subfield to be called "psychological theoretics". Thus, I would encourage global psychology community to allow the verdict to follow from the outcome of the discourse on this topic. In addition, the arguments have relevance for improving global psychology. Indeed, psychology is a global science, though not a universal one. This is because the results of its studies are intersubjectively communicable through a common intelligible language but are grounded in particular contexts of the researcher and the research participants (Brzezinski, 2014; Grzelak, 2014).

Having this context in mind, let us at this point begin with the idea that the primary aim of science is theory building. Perhaps, a less cryptic fashion to phrase it is that "the basic aim of science is to find general explanations of natural stimuli" (Kerlinger, 1964, p. 10). Similarly, Leahey (1992, p. 11) argues that science seeks to explain the natural world with theories, "whether they are regarded as true (the causal-ontic-realist view) or merely useful (epistemic-unificationist-antirealist view)". Kerlinger (1964) further argued that the primary aim of science is not the betterment of mankind but generating theories with explanatory power. More forcefully, Teo (2020) also argues that while theorizing appears to be an inclination for some psychologists, it must be a duty of every psychologist if psychology is not to be considered a hyper-science. Teo (2020) defines a hyper-science as a science that utilizes the philosophy and methodology of a natural science to create the impression that it is itself a natural science; makes its methodology sophisticated to hide the temporality and contextuality of phenomena it studies; and frequently calls itself as a science so that it can compensate for the lack of substance and content. Indeed, at the moment, psychology is a hyper-science in that there is an emphasis on methodology, a lack of theorizing, and repeatedly claiming publicly to be doing science (Teo, 2020). He further argues that "Theorizing is an obligation because of the disorganized status and the many ontic, epistemic, and ethical problems of psychology as a science and as a practice" (Teo, 2020, p. 765).

It is generally agreed that the aims of science are explanation, understanding, prediction, and control (Ettinger & Spires, 2008). Kerlinger (1964) made the point that theory is the ultimate aim of science whereas explanation and understanding are the sub-objectives of theory and both prediction and control are elements of a theory. For instance, he argued that "[b]y its very nature, a theory predicts" and that "a theoretical explanation implies predictions" (Kerlinger, 1964, p. 12). Thus, there is nothing more useful than a good theory. A good science leads to good applications and a good science is one that produces good theories. Simply put, a good theory is necessary for practical solutions. This means that every scientific endeavour should

aim first at theory formulation. This also means that psychological science will become more useful in solving societal problems if psychologists are to produce good theories. However, to produce good theories psychologists must master the art of theory formulation and understand the limits of methodology of the discipline.

More recently, Greenwald (2012) has provided new evidence that shows that there cannot be anything so theoretical as a good method. He investigated the method–theory synergy using Nobel Prize awards from 1991 to 2011 in medicine, physics, and chemistry and more specifically, Nobel Prizes awarded to psychologists from 1949 to 2002 in medicine and economics. He found that (a) during the 1991–2011 period, there were more Nobel Prizes awarded for contributions to method than to theory, and (b) the Nobel Prizes were awarded to the psychologists for method-based contributions. However, Greenwald (2012) observed two patterns of interactions between theory and methods: (1) existing theories were usually utilized in developing new methods, and (2) existing methods were used to develop new theories. These findings support the notion that the ultimate purpose of science is theory and that applications (methods) follow from theory and methods eventually result in theory.

In addition to the need for good theories, psychological science is said to be currently facing reproducibility and/or replicability crisis (Asendorpf et al., 2013; Cesario, 2014; LeBel, 2015; Open Science Collaboration [OSC], 2015; Simons, 2014; Stam, 2020; Westfall et al., 2015). Asendorpf et al. (2013) distinguished between reproducibility and replicability. Asendorf et al. (2013) defined reproducibility as the extent to which a researcher can obtain the same statistical results that were originally documented in a previous study when using the original dataset and following the same methodology. On the other hand, replicability is concerned with the extent to which similar findings as a previous study can be obtained using other random samples drawn from populations similar to the target population of the original study (Asendorpf et al., 2013). Thus, reproducibility deals with stability of parameters (or statistical estimates) while replicability relates to similarity of findings.

They further added that "…data reproducibility is necessary but not sufficient for replicability and replicability is necessary but not sufficient for generalizability" (Asendorpf et al., 2013, p. 110). Conducting 100 replications of psychological studies, the 270 contributing researchers documented evidence that only 39% of the replications yielded the exact effects observed in the original studies (OSC, 2015). Using 2008 as the target year, the study's sampling frame comprised articles from three top-ranked psychology journals: *Journal of Personality and Social Psychology*, *Psychological Science*, and *Journal of Experimental Psychology: Learning, Memory, and Cognition*.

Despite these challenges rocking psychological science and, in the process, eroding the credibility of the discipline and its associated professionals, there appears

not to be any concerted global, discipline-wide response. The principal response has been recommendations from individual psychologists who are grounded in methodological issues. For example, Asendorpf et al. (2013) have made several recommendations spanning methodology (study designs and data analysis), publication, and teaching of research methods and statistics. Among the methodological recommendations are (1) increasing sample size, (2) increasing reliability of measures, (3) avoiding multiple underpowered studies, and (4) considering error introduced by multiple testing.

It is, however, important to note that not every psychologist agrees that there is such thing as reproducibility crisis (see Gilbert et al., 2016). They showed that OSC's (2015) article contained three key statistical miscalculations and, when corrected, does not provide any evidence of a replication crisis. The recalculation rather supports the inference that reproducibility in psychological science is reasonably high and does not statistically differ from 100%. The counterevidence provided by Gilbert and colleagues against the evidence from the OSC group and the matters arising from the disagreement in and of itself should suggest a deeper insight into theory, philosophy of psychological science and methodology will be useful.

Furthermore, in October 2021, the Association of Psychological Science (APS) invited its members to share their views on the grand challenges psychological science should seek to address in 2022 and beyond (Thayer, 2022). The APS reached out to its members around the world to ensure that their responses reflect the diversity of experiences and opinions within the multidomain world of psychological science (Thayer, 2022). The second grand challenge of psychology identified relates to research integrity (e.g. reproducibility and replication crisis) and applicability. It was suggested that the replication crisis requires psychologists to understand the limits of their science and "have the intellectual humility to embrace a sophisticated epistemology and philosophy of science" and that "many psychological scientists are naive logical positivists but are unaware of how that epistemological position is untenable and long outdated" (Thayer, 2022, para. 24). This shows that merely attempting to improve the methods without the adjusting the philosophy of science underpinning it only repeats what Teo (2020) sees as making psychology a hyper-science—a pseudo-natural science and what Swedberg (2012) accuses the social science of doing since World War II—overdeveloping methods without equal attention to theorizing and struggling to tie facts to theories (I shall return to this line of argument shortly). This shows that a focus on theorizing and philosophy of science would somewhat help psychological science deal with its reproducibility and replication crisis. This leaves out the issue of people failing to adhere to the recommendations made so far to tackle the crisis. Perhaps, it is crucial to understand that making methods sophisticated without a proper understanding of the reasons those

reforms have been made may impede adherence. And this has the tendency to reduce most psychologists to the status of technicians doing things without understanding of what is in the "black box".

As a result, a dedicated global institutional response would include training the next generation of psychologists who, as a minimum requirement, will be grounded in the methodology of psychological investigations, theories of psychology as well as the philosophy of psychological science. Additionally, some of such psychologists could receive specialized training in this area to generally lead to improvement in the conduct of psychological investigations. In other words, there is an urgent need for a new subfield of psychology to be dedicated towards such an endeavour. However, such a subfield appears not to currently exist. For instance, the American Psychological Association (APA, 2011) compiled a list of the major subfields in psychology, yet such a subfield dedicated to the study of methodology of psychological investigations, theories of psychology, history and the philosophy of psychological science was absent.

There is also an argument that theory is less developed in the social sciences due to the neglect of domain of theorizing. Speaking about sociology and social sciences in general, Swedberg (2012) intimates the social sciences have made great strides in improving the methodologies used with little or no advancement in theory. He further decries the uneven development of the social sciences since World War II where social scientists are more competent today with respect to methods but are less capable in handling theory. He is concerned about the fact that many major journals are replete with soundly executed studies, but theoretically interesting articles are almost non-existent (Swedberg, 2012). As a result, he asked us: "Why is this case? And can the situation be changed? Can theory part be brought up to par with the methods part in today's social science?" (Swedberg, 2012, p. 2).

Thus, it is understandable why Swedberg (2012) would call for a focus on theorizing rather than theory to address the situation where methods are highly developed, and theory is highly underdeveloped. He further warned that attempts to focus on theory testing rather than theorizing would translate into "an awkward struggle of trying to get theory and facts together" (Swedberg, 2012, p. 33). Additionally, Swedberg (2012) intimates that theorizing would help usher the social sciences into a new era of interesting and creative theory building. Consistent with Teo's (2020) views, Swedberg (2012) agrees that theory building should not be the task of only a small number of gifted scholars. Borghi and Fini (2019, p. 1) make a similar case in relations to psychology when they argued that one of the enduring characteristics of psychology is its focus on empirical investigations. While acknowledging that methodological focus of the discipline is essential, they are equally concerned that

"all too often this fascination for empirical data is accompanied by the absence of an equally deep interest for theory development" (Borghi & Fini, 2019, p. 1).

It is against this background that I submit "psychological theoretics" (or psycho-theoretics) as a potentially new interest area within psychology to fill in the gap. It is worth noting that I use psychological theoretics interchangeably with psycho-theoretics. Indeed, this new interest area has the potential to become a subfield of psychology. I acknowledge the pioneer work done by Hall (1879, 1885), Creighton (1902), Griffith (1921, 1922), Cronbach (1957) as well as some of their contemporaries who have also devoted their attention to similar issues. The work done by Slife and colleagues on this interest area (see Slife & Williams, 1997; Slife, 2000a, 2000b) is also acknowledged. It is the position in this paper that it is necessary to deliberately expose current and future psychologists as well as other social scientists to the art of the theorizing and philosophy of science. In the ensuing paragraphs, psychological theoretics is outlined while a potential undergraduate, postgraduate and specialization curricula are presented.

OUTLINING PSYCHOLOGICAL THEORETICS

Psychological theoretics is a neologism. Indeed, a Google Scholar search yielded no relevant results. I submit psychological theoretics as *the study of the methodology of psychological investigations, theories of psychology, history, and the philosophy of psychological science as well as their interrelations with purpose of advancing the methodological, theoretical, and philosophical practices in psychological science*.

What shall be the purpose of psychological theoretics? I draw on the very purpose that a key figure set for the Philosophical Association in the early 1900s. Prior to the meeting of the Philosophical Association, Creighton (1902) suggested that the main purpose of the Association should be to promote and encourage original investigation and publications. This also should be the main purpose of psychological theoretics—to ground psychologists in appropriate subject matters to enable them to engage in original investigations on issues that will yield good theories that can solve their societal problems. In addition, it will equip psychologists with the requisite knowledge base to rethink and reconstruct some of the ideals, practices, and theories of the discipline. It means that existing paradigms will be questioned through psychological theoretics. Thus, as psychologists, we need to question our traditional ideas about the character of our theories, methodology and the relation between them.

Similarly, Hall (1885) argued that learning psychology without a profound knowledge of its philosophical contemplations in its past amounts to indoctrination and that learning its history opens it up to the possibility of renewal and innovations. Hall (1885, para. 10) argued that indoctrination into "one finished system, with no knowledge of others, makes real philosophizing impossible, and weakens the capacity to take in others' view unchanged, which is well conceived as one chief end of education." Hall (1885) intimated that historical studies in psychology should seek to examine all finished systems (approaches and methodologies) at their roots and explore different avenues to uncover new insights about psychological phenomena. He further suggested that when the force of great systems which were in vogue in previous centuries is spent, it becomes very crucial to examine the history of the philosophical positions, methodologies, and approaches to truly reform (Hall, 1885). Indeed, Fahrenberg (2012) urges psychologists to have intellectual intercourse with philosophy to encourage epistemological appraisal of the metaphysical assumptions that permeate psychological thought. All of these seem to suggest that history and the philosophy of psychological science will aid psychologists in generating new ideas or resolving old challenges.

In a more practical way, knowledge from psychological theoretics could be useful in dealing with the reproducibility crisis in science in general and in psychology in particular. This is because only those who can engage in critique of the currently widely held ontological, axiological, and epistemological consensus defining the science of psychology can offer valuable recommendations for improvements. Knowledge of what is in the "black box" of methodological reforms can aid adherence to the methodological reforms. Thus, the solution to the reproducibility crisis is not in science itself but in the philosophical, theoretical, methodological, and historical examination of the current paradigms of science. The tools for such examinations, though may exist, are applied in an *intradisciplinary* manner. Psychological theoretics is relevant here because it takes an *interdisciplinary* or a *transdisciplinary* approach to these issues (I shall return to this issue later); this will result in more informed and valuable recommendations.

But are there not courses or modules within the current psychological curriculum that do or can do what psychological theoretics seeks to accomplish? It is possible to argue that psychological theoretics is nothing new but a rebranding of an existing set of courses or modules. For instance, theories of psychology, research methods, and history of psychology are taught as separate subjects or courses in many departments of psychology around the world. Perhaps there is not much demand to create psychological theoretics. Acknowledging the above, it is important to understand that the aforementioned subjects are taught separately. Owing to that, they fail as individual subjects to provide a holistic understanding of the practice and conduct

of psychological science. The integrative elements that weave these separate subjects into a narrative appear missing as well. Thus, psychological theoretics fills this gap by weaving these subjects together. Interestingly, philosophy of psychological science is often not taught except as part of the research methods in psychology. However, there are epistemological, ontological, and axiological issues on which psychologists need to deliberate. Some attempts have been made to raise and answer such philosophical issues in psychological science (see Tyson et al., 2011). As stated earlier, I present these arguments about psychological theoretics as an invitation to other scholars of psychology to a discourse about the relevance of having such a new subfield dedicated to the improvement of the science. I, therefore, treat this as an open invitation.

It is equally possible to suggest that psychological theoretics is redundant given that quantitative psychology already exists. The APA Task Force for increasing the number of quantitative psychologists (2009, p. 1) defines quantitative psychology as "the study of methods and techniques for the measurement of human attributes, the statistical and mathematical modeling of psychological processes, the design of research studies, and the analysis of psychological data." While acknowledging that psychological theoretics shares some similarities with quantitative psychology, the latter embraces mainly methods and techniques informed by positivist philosophy of social science. Psychological theoretics, on the other hand, does not attempt to orient its students to any particular philosophical leanings. Its aim would be to enable students of psychology become aware of the various philosophical orientations that can inform research and develop the art of questioning them for improvement. Thus, psychological theoretics aims to empower students to examine all philosophical traditions that inform research in psychology and the social sciences. This makes psychological theoretics broader in scope compared to quantitative psychology.

Again, psychological theoretics goes beyond studying the methods and techniques for designing experiments and analyzing psychological data. It would also equip students with the techniques of developing theories, qualitative research methodology, understanding the historical trends that shape psychological science, and how science is actually conducted (i.e. the sociology of science), thereby demystifying psychological science. The actual techniques for research and data analysis can be left to teaching of research methods and data analysis. Thus, it would make sense that psychological theoretics is taught after the individual has learned about research methods and data analysis. It is worth noting that even if psychological theoretics is pursued as a subfield of specialization, data analysis and research techniques would have to be taught as part of its curriculum.

How different is psychological theoretics from theoretical and philosophical psychology? This is a simple question that has a complex answer. In one breath,

any theoretical psychologist could argue that "psychological theoretics" is just an attempt to find a shorter name for an otherwise existing interest area with a long name. In another breath, it would also appear that the two share some similarities but are different.

According to Slife (2000a), theoretical psychologists seek to accomplish two objectives: (1) formulate, and help others formulate, the theories that will be subjected to empirical testing, and (2) examine, and help others examine, the non-empirical issues that currently support or impede psychological science. In this paper, psychological theoretics has been defined as the study of methodology of psychological investigations, theories of psychology, history, and the philosophy of psychological science as well as their interrelations with purpose of advancing the methodological, theoretical, and philosophical practices in psychological sciences. The ultimate goal is to demystify ways of producing knowledge.

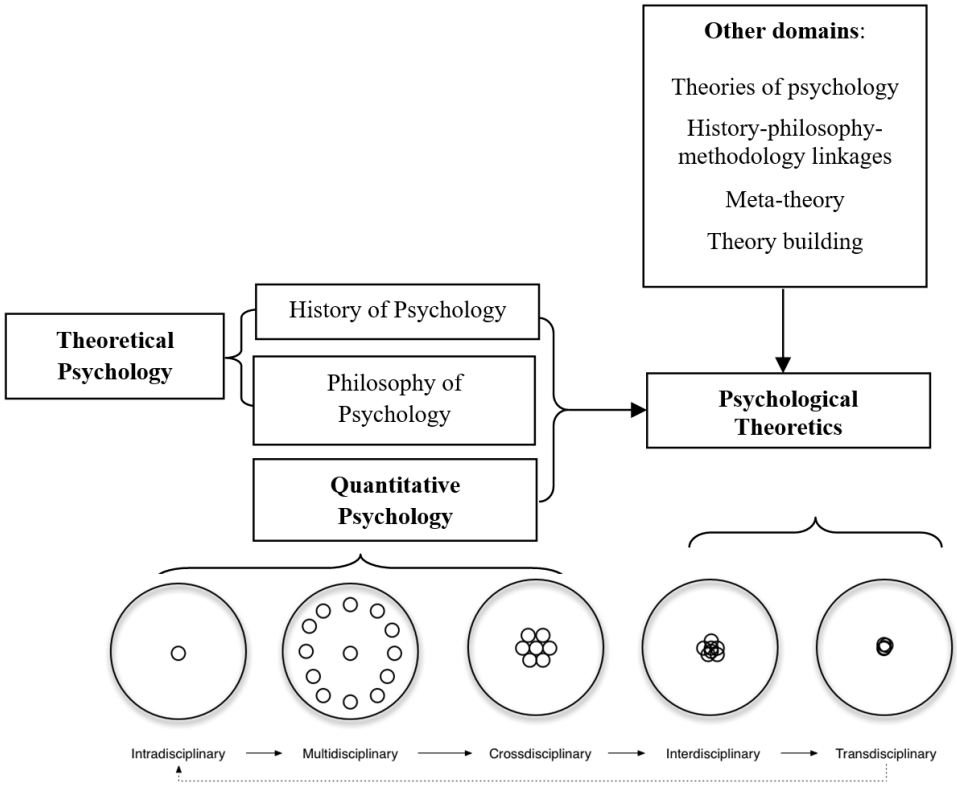
Similarly, Slife and Williams (1997) suggested the following courses for the training of theoretical psychologists: philosophy of social science, intellectual history of psychology, psychological epistemology, ontology, metaphysics, and ethics. Theoretical psychology as conceived by Slife and Williams (1997) appears to largely consist of philosophy of psychology as part of philosophy of science and history of psychology. García (2018, p. 177) defines history of psychology as field of study that "analyzes the conditions in which psychology emerged and developed as a science and profession, as well as the conceptual and theoretical variants that emerged in the course of its historical evolution." On the other hand, philosophy of science broadly deals with the key elements, methods, and effects of science on society and the nonscientists as well as nonscientific institutions and practices (Machamer, 1998; Rosenbery, 2005; van Fraassen, 2011). Issues of ontology, epistemology, axiology, and their methodological implications are explored in philosophy of science (Machamer, 1998; Rosenbery, 2005; Walliman, 2011). The philosophy of psychology, as discussed here, is philosophy of science with psychology as its main focus; thus, philosophy of psychology examines the features, methods, and effects of psychological science on society and the use of its findings by non-psychologists and non-psychological institutions.

It, therefore, appears that theoretical psychology as conceived by Slife and Williams (1997) is similar in content to psychological theoretics as proposed here. Psychological theoretics goes beyond these courses to include theories of psychology, relationships among history, philosophy and methodology of psychological science, meta-theory, and theory formulation and testing. Alatas (2000, p. 80) defined meta-theory as "the study of the social, cultural and historical contexts of theories and theorists, and their philosophical roots". Again, psychological theoretics seeks to ensure that these courses are taught and studied within the same module or curricu-

lum rather than as courses taught or learned separately. In this respect, I admit that the pioneering work done on theoretical psychology has served as a precursor to this proposed area of study. However, psychological theoretics is broader in scope and more *interdisciplinar*y than theoretical psychology as proposed by Slife and Williams (1997). What is then different about psychological theoretics? Though psychologists interested in theoretical psychology have attempted to formalize their interest area (see Slife & Williams, 1997), it has remained largely an interest area. This is because the early attempts conceptualized it as supplementary education to existing specializations. However, psychological theoretics is being conceptualized not as a supplementary education but a potential specialization on its own, on the same level as any other primary specialization. There is also no gainsaying that psychological theoretics appears to be a mixture of quantitative psychology, theoretical psychology, and the philosophy of psychology as a part of philosophy of science. As a result, a clear demarcation of each discipline (psychological theoretics, philosophy of science and theoretical psychology) may be needed. The emphasis of psychological theoretics is in its *interdisciplinary* nature that will allow psychologists to integrate knowledge and methods from different disciplines through a synthesis of perspectives and approaches. Currently, each discipline works within an *intradisciplinary* and/or *cross-disciplinary* frameworks. Jensenius (2012) defined *intradisciplinary* orientation as operating in a single discipline and *crossdisciplinary* orientation as examining a discipline from the perspective of other disciplines. He further defined *interdisciplinary* framework as a synthesis of approaches based on knowledge and methods from different disciplines whereas *transdisciplinary* perspective was defined as "creating a unity of intellectual frameworks beyond the disciplinary perspectives" (Jensenius, 2012, para. 2). Thus, *intradisciplinary* or *crossdisciplinary* orientation best describes the methods and approaches with the existing quantitative psychology and theoretical psychology. On the other hand, psychological theoretics aims at evolving from an *interdisciplinarity* to *transdisciplinarity* to provide better understanding of how to construct knowledge for accurate description of and explanation for why people feel, think, and act the way they do—the subject matter of psychology (see Figure 1).

Figure 1

Diagrammatic Representation of the Different Disciplinarities in Relations to Quantitative and Theoretical Psychology as Well as Psychological Theoretics



Note: Adapted from Jensenius (2012).

Slife and Williams (1997) trace the roots of theoretical and philosophical psychology to Wilhelm Maximilian Wundt (1832–1920). Fahrenberg (2012) provides a useful discussion on Wundt's epistemology and methodology or his theory of science in psychology. It is added here that psychological theoretics can be traced to the origin of psychology as emanating from the marriage between philosophy and physiology. Slife and Williams (1997) identified and responded to potential objections that some psychologists could have about theoretical psychology. These objections are still relevant and can similarly be raised against psychological theoretics (see Table 1). Borghi and Fini (2019, p. 1) have decried the fact that "while

other scientific disciplines are endowed with a theoretical branch—think of the role of 'theoretical physics' for physics—psychology does not have an equally institutionalized theoretical branch."

What is or would be the utility of a psychological theoretics? This can be examined in two ways: (1) its utility to the psychology community and (2) its utility to the society in solving societal problems. As has been described earlier, psychological theoretics would equip psychologists with the tools for doing good psychological science better and formulating good theories. A good science would also help psychology to navigate the current problems of reproducibility and replicability.

The usefulness of psychology to public policy has been called into question globally. For instance, Carr (2007) has decried that psychology is rarely called upon to offer public policy prescriptions at the meetings and meeting places of the Organisation for Economic Co-operation and Development or the United Nations or the conferences of policy makers, government officials, and researchers. While policy advice is being sought from other related disciplines such as economics, sociology, social policy, anthropology, and management, psychology is often absent or ignored. It suggests that the competence of a psychologist is "still perceived as predominantly in terms of clinical and counselling" (Carr, 2007, p. 45). Similarly, psychology has been described as a "marginal discipline in academia, policy development and practice" (Nsamenang, 2007, p. 5). Indeed, psychology is not one of the disciplines that policymakers readily recall (Machungwa, 1989; McKnight et al., 2005; Oppong, 2014, 2015). The low profile of psychology among policy-makers accounts for the little impact of psychology in the policy circles (Carr, 2007; McKnight et al., 2005). However, at the core of the contribution of psychology to policy is the formulation of good theories. Thus, society would benefit from psychological theoretics in terms of building of good theories with adequate explanatory powers to inform policy.

Table 1

Objections and Responses to Psychological Theoretics

Objections	Responsce
We already have too many theories as it is.	The major focus of psychological theoretics would be the elucidation and critical appraisal of psychology's ideeas and practices, thus, defining and organizing theories.
What will be the content of psychological theoretics as a sub-discipline?	Psychological theoretics would be, in a sense, a meta-discipline studying the scholars and the content of what they study.
Other sciences do not have any formally acknowledged subfield for theoretical issues, but they are great.	It is important to note that other sciences such as physics and economics have recognized the role of theoreticians. Theoretical physics is the best-known exemplar.
As advances occur in neuroscience experiments, empirical results will ultimately make redundant the role of theorizing or theorists in psychology.	Even in the neurosciences, there is still room for speculations when explaining a phenomenon. This is due to huge gaps between knowing that certain regions of the brain as predominantly affected in certain ways in people with certain conditions and explaining why the affected regions of the brain may be responsible for the observed behaviour or conditions. This implies that improvements in scientific procedures by itself cannot settle the issues of theory displacement by strict empiricism. On the other hand, improvements are unlikely to be possible without advanced knowledge of philosophy of science.
Is it not better to have each subfield of psychology to do its own theorizing instead of having a subfield devoted to just theorizing?	Nothing about psychological theoretics, as proposed here, prevents, or discourages psychologists within the various sub-disciplines from engaging in theorizing in their own disciplines.
It is not possible to imagine the discipline of psychology advancing on the sole basis of theory. As a result, psychological theoretics cannot be expected to advance the science of psychology.	Theory and empirical studies are bedfellows. Empirical studies do originate from theory and their results are a feedback loop to theory. In other words, theorizing always consider previous empirical studies, experiences, and the past. Each leans on the other for growth.
Psychologists are doing amazing work without any in-depth theorizing. Why should psychologists, therefore, worry themselves about philosophy when they should be more concerned about constructing models and methods to study human behaviour?	This objection itself is informed by some philosophy of science that wants the social sciences to become more like the natural sciences (naturalism or physicalism); this conclusion itself is an inconclusive conclusion informed by a debatable philosophy through an unknowingly uncritical acceptance. So, which one is more important: this philosophical perspective of naturalism or the very idea that naturalist philosophy is philosophical, which is philosophy itself? A sub-discipline of psychological theoretics would ensure that these issues are constantly being examined.
It is quite impossible to find grants to finance theoretical studies. Therefore, it is less likely that psychological theoretics will be able to attract research grants.	This objection reveals more about the reality of science today in which politics (of financing) directs research globally. Perhaps, this reality should make psychologists begin to question the validity of interpretations of research results: he who pays the piper calls the tune. Thus, the need for psychological theoretics is even greater in a situation such as the current state of doing science in contemporary times.

Note: Adapted from Slife and Williams (1997).

Perhaps, the boldest attempt to bring psychology into global public policy arena has been The World Bank-sponsored two-and-half year field randomized trials in Lome, the capital of Togo with 1,500 participants in which psychology-based entrepreneurship training was shown to be far superior to traditional entrepreneurship curriculum and training (see Campos et al., 2017). This psychology-based entrepreneurship training (called personal initiative training) was developed by a team of psychologists led by Prof. Michael Frese at the Leuphana University of Lüneburg. Despite this new wave of psychology impact, psychologists involved in theory-philosophy-history-related pursuits tend to be on the periphery of margins as psychology as a discipline is still largely on the margins of public policy compared to economics and sociology (see Carr, 2007). The failure of APA (2011) and similar associations to recognize theory-philosophy-history as a substantive subfield shows indeed that such pursuits are on the periphery of the discipline. This suggests that a new specialty such as psychological theoretics will help center such theory-philosophy-history pursuits within psychology away from the periphery and hopefully into the public arena. This is because good psychological science (good theory) would result in more accurate predictions and better controls (applications). Thus, as psychologists get better at doing psychological science, it will also lead to improved applications or technologies of behavioural controls. The *theory* ↔ *application* linkage would also result in improved perceptions of image and credibility of psychology. Equipped with better theories and potential solutions, psychologists would be able to contribute meaningfully to public policy formulation (see Oppong, 2015, 2022).

TEACHING PSYCHOLOGICAL THEORETICS

Given that the various elements of psychological theoretics are already being taught, albeit intra-disciplinarily, one can argue that psychological theoretics is currently being taught. Notwithstanding, how the elements of psychological theoretics are being taught at the moment is scattered and ineffective; Mills et al. (2010) provides some evidence in support of this argument. Mills et al. (2010) conducted two studies investigating the degree in which psychologists access quantitative methodology publications. The sampling frame for Study 1 comprised articles in the following top-tier, peer-reviewed journals: *Journal of Personality and Social Psychology* (JPSP), *Psychological Bulletin* (PB), *Journal of Consulting and Clinical Psychology* (JCCP), *International Journal of Psychophysiology* (IJOP), *Child Development* (CD), and *Journal of Applied Psychology* (JAP). In addition to the above-mentioned journals, Study 2 included *Psychometrika* (PMET), *British Journal*

of Mathematical and Statistical Psychology (BJMSP), *Journal of Educational and Behavioral Statistics* (JEBS), and *Psychological Methods* (PM).

In Study 1, Mills et al. (2010) reported that 39% of the articles they evaluated did not refer to any quantitative article while 72% included one or two. In Study 2, Mills et al. (2010) investigated the extent to which quantitative methodology articles were referenced by non-quantitative and quantitative methodology researchers; they found that the frequency with which quantitative methodology articles was referenced was very low. They explained their findings in two ways: (1) psychologists do not often read the literature on quantitative methodology to determine the most appropriate ways to analyze their data and/or (2) psychologists may read articles to identify novel and most appropriate statistical techniques but fail to make references to them in their work (Mills et al., 2010). However, the second explanation is untenable. Analyzing data in an unconventional way would require discussing the rationale and referencing sources (articles, books, book chapters, and conference proceedings) that recommend the proposed analysis. Given our human tendency to copy good examples (Nakawake & Kobayashi, 2022), psychologists are more likely to copy methods being published without questioning their status in the science. This implies that non-adherence to methodological reforms to address the reproducibility and replicability crisis lies in the fact that psychologists rarely read and/or cite methodology papers while they are more likely to use the methods with currency in the field. This signifies the need to expose psychologists to psychological theoretics.

Similarly, psychologists are unable, through existing training in methodology, to benefit from the synergy that comes from discussing the various elements of psychological theoretics at the same time (e.g. history, philosophy, methodology, and theories of psychology). This is to say that the current training in methodology has the effect of producing psychologists who do not understand the potentials and limits of their science and how to travel uncharted paths.

Accordingly, Departments of Psychology around the world should consider mounting courses at both the undergraduate and postgraduate levels in psychological theoretics. Indeed, psychologists, wherever they may be located, would benefit from a tighter integration of history, philosophy, theories, and methodology. This is because psychology has become increasingly overspecialized, and the issues being raised today in psychology require holistic approaches. A potential solution to the problem might be the institutionalization of a capstone, or integrative course which focuses the student's attention on integrating the various sub-disciplines of psychology. A course on psychological theoretics will be helpful in this direction.

Undergraduate teaching in psychological theoretics would involve teaching it as a course or module. Such a course should aim at introducing and outlining the scope of psychological theoretics to the students. Thus, core topics such as (1) definition

and scope of psychological theoretics, (2) history of psychology: global, (3) history of psychology: country-specific, (4) philosophies of psychological science, (5) research methodology and their philosophical underpinnings, and (5) major theories of psychology and their critique. At the postgraduate level, additional topics could include (6) relationships among history, philosophy, and methodology of psychological science, (7) context and reality of psychological science, (8) misconceptions in psychological science, and (9) theory formulation and testing. The postgraduate teaching in psychological theoretics can be conducted at both the master's and doctoral levels. The difference will lie in the demands and depth of the course in terms of reading loads, discussions, and requirements to understand key concepts deeply and broadly to write higher-level analytical papers.

Psychological theoretics can also be taught as a specialization at the postgraduate level. This will require that the psychology student is exposed to both the existing cores courses (such as systems and theories of psychology, research methods, data analysis, psychometrics, and psychological testing), and elective courses in psychological theoretics. The core courses should be taught through a critical perspective. The elective courses for psychological theoretics could include such courses as (1) introduction to psychological theoretics, (2) historical introduction to modern psychology, (3) philosophy of psychological science, (4) psychology and its socio-cultural context, (5) theory formulation and testing, and (6) intersectionality of history, philosophy, and methodology of psychological science.

CONCLUSION

In this paper, I attempt to argue for the introduction of a new subfield in psychology to be known psychological theoretics. A review of the context within which psychological theoretics is proposed is also presented. Though different aspects of psychological theoretics predate a formal subfield of psychological theoretics, they are scattered and ineffective in their current form. For instance, the current reproducibility crisis in psychology partly provides evidence (Asendorpf et al., 2013; Cesario, 2014; LeBel, 2015; OSC, 2015; Simons, 2014; Westfall et al., 2015) while the low frequency of citing of quantitative methodology papers in reports of empirical studies is another (Mills et al., 2010). It was suggested that psychological theoretics can be promoted through teaching, formation of associations as well as establishment of a journal to be known as psychological theoretics. It is believed that it would make a unique contribution to the advancement of good psychological science.

It is worth noting that even if psychologists today are not ready for a new subfield, the proposals I present in this paper can still be relevant to addressing some of the problems of psychology in the 21st century. Psychology has become increasingly specialized, and the issues raised earlier would require a holistic approach. At least, institutionalizing a capstone, or an integrative course which focuses students' attention on integrating the various sub-disciplines of psychology will be useful. In case of rejecting the idea of a new subfield, psychologists and psychologists-in-training will still benefit from the proposed modules, namely:

- **Undergraduate Module:** (1) definition and scope of psychological theoretics, (2) history of psychology: global, (3) history of psychology: country-specific, (4) philosophies of psychological science, (5) research methodology and their philosophical underpinnings, and (6) major theories of psychology and their critique.
- **Graduate Module** (where psychological theoretics is not offered as a specialization): (1) relationships among history, philosophy, and methodology of psychological science, (2) context and reality of psychological science, (3) misconceptions in psychological science, and (4) theory formulation and testing.
- **Graduate Specialization Modules** (each represent a single module to be taught as a separate semester course): (1) introduction to psychological theoretics, (2) historical introduction to modern psychology, (3) philosophy of psychological science, (4) psychology and its socio-cultural context, (5) theory formulation and testing, and (6) intersectionality of history, philosophy, and methodology of psychological science.

REFERENCES

Alatas, S. A. (2000). Academic dependency in the social sciences: Reflections on India and Malaysia. *American Studies International*, *38*(2), 80–96.

American Psychological Association (2011). *Careers in psychology.* Author.

APA Task Force (2009). *Report of the task force for increasing the number of quantitative psychologists.* http://www.apa.org/research/tools/quantitative/quant-task-force-report.pdf

Asendorpf, J. B., Conner, M., De Fruyt, F., De Houwer, J., Denissen, J. J. A., Fiedler, K., Fiedler, S., Funder, D. C., Kliegl, R., Nosek, B. A., Perugini, M., Roberts, B. W., Schmitt, M., Vanaken, M. A. G., Weber, H., & Wicherts, J. M. (2013). Recommendations for increasing replicability in psychology. *European Journal of Personality*, *27*(2), 108–119. https://doi.org/10.1002/per.1919

Borghi, A. M., & Fini, C. (2019). Theories and Explanations in Psychology. *Frontiers in Psychology*, *10*, 958. https://doi.org/10.3389/fpsyg.2019.00958

Brzezinski, J. M. (2014). On what is important when we think of psychology in Poland. *Annals of Psychology*, *17*(3), 495–515.

Campos, F., Frese, M., Goldstein, M., Iacovone, L., Johnson, H. C., McKenzie, D., & Mensmann, M. (2017). Teaching personal initiative beats traditional training in boosting small business in West Africa. *Science*, *357*, 1287–1290. https://doi.org/10.1126/science.aan5329

Carpenter, J., & Kooistra, N. (2014). *Engaging Africa: The prospects for project funding in selected fields*. Study prepared for the John Templeton Foundation and The Issachar Fund. Nagel Institute of Calvin College.

Carr, S. C. (2007). I-O psychology and poverty reduction: Past, present, and future? *The Industrial-Organizational Psychologist*, *45*(1), pp. 43–50.

Cesario, J. (2014). Priming, replication, and the hardest science. *Perspectives on Psychological Science*, *9*(1), 40–48. http://doi.org/10.1177/1745691613513470

Creighton, J. E. (1902). The purposes of a philosophical association. *Philosophical Review*, *11*(3), 219–237.

Cronbach, L. J. (1957). The two disciplines of scientific psychology. *American Psychologist*, *12*, 671–684.

Ettinger, R. H., & Spires, W. E. (2008). *Understanding psychology* (3rd ed.). Horizon Textbook Publishing.

Fahrenberg, J. (2012). Wilhelm Wundts wissenschaftstheorie: Ein rekonstruktionsversuch. *Psychologische Rundschau*, *63*(4), 228–238.

García, J. E. (2018). Creativity in psychological theories and the place of history. In J. C. Penagos-Corzo and M. A. P. Vargas (Eds.), *Challenges in creativity & psychology in the XXI century* (pp. 177–191). Fundación Universidad de las Américas.

Gilbert, D., King, G., Pettigrew, S., & Wilson, T. (2016). Comment on "Estimating the reproducibility of psychological science". *Science*, *351*(6277), 1037a–1037b.

Greenwald, A. G. (2012). There is nothing so theoretical as a good method. *Perspectives on Psychological Science*, *7*(2), 99–108. http://doi.org/10.1177/1745691611434210

Griffith, C. R. (1921). Some neglected aspects of a history of psychology. *Psychological Bulletin*, *30*, 17–29.

Griffith, C. R. (1922). Contributions to the history of psychology: 1916–1921. *Psychological Bulletin*, *19*, 411–428.

Grzelak, J. (2014). Polish or global psychology. *Roczniki Psychologiczne*, *17*(3), 543–551.

Hall, G. S. (1879). Philosophy in the United States. *Mind*, *4*, 89–105.

Hall, G. S. (1885). The new psychology. *Andover Review*, *3*, 120–135, 239–248.

Jensenius, A. R. (2012). *Disciplinarities: Intra, cross, multi, inter, trans.* http://www.arj.no/2012/03/12/disciplinarities-2

Kerlinger, F. N. (1964). *Foundations of behavioral research*. New York: Holt, Rinehart and Winston.

Leahey, T. H. (1992). *A History of Psychology: Main Currents in Psychological Thought* (3rd ed.). Prentice-Hall.

LeBel, E. P. (2015). A *New Replication Norm for Psychology*. *Collabra*, *1*(1), Art. 4. http://doi.org/10.1525/collabra.23

Machamer, P. (1998). Philosophy of science: An overview for educators. *Science & Education*, *7*, 1–11.

Machungwa, P. D. (1989). *Postgraduate training in industrial psychology: Issues and Problems.* Paper presented at seminar on the Current Status of Teaching of Psychology and Psychological Research in Eastern and Southern Africa, Kenyatta University, Nairobi, Kenya.

McKnight, K. M., Sechrest, L., & McKnight, P. E. (2005). Psychology, psychologists, and public policy. *Annual Review of Clinical Psychology*, *1*, 557–576.

Mills, L., Abdulla, E., & Cribbie, R. A. (2010). Quantitative methodology research: Is it on psychologists' reading lists? *Tutorials in Quantitative Methods for Psychology*, *6*(2), 52–60.

Nakawake, Y., & Kobayashi, Y. (2022). Negative observational learning might play a limited role in the cultural evolution of technology. *Scientific Reports*, *12*, 970. https://doi.org/10.1038/s41598-022-05031-2

Nsamenang, A. B. (2007). Origins and development of scientific psychology in Afrique Noire. In D. Wedding & M. J. Stevens (Eds.), *Psychology: IUPsyS global resource* (Edition 2007). *International Journal of Psychology*, *42*, (Suppl. 1).

Open Science Collaboration. (2015). Estimating the reproducibility of psychological science. *Science*, *349*(6251). https://doi.org/10.1126/science.aac4716

Oppong, S. (2014). Psychology, economic policy design, and implementation: Contributing to the understanding of economic policy failures in Africa. *Journal of Social and Political Psychology*, *2*(1), 183–196. https://doi.org/10.5964/jspp.v2i1.306

Oppong, S. (2015). Psychology in the service of public policy and development planning: The case of Ghana. *Africanus*, *45*(1), 42–61. https://doi.org/10.25159/0304-615X/254

Oppong, S. (2022). Locus of control and the misreading of culture of poverty: An appraisal of Lawrence M. Mead's ideas in "Culture and Poverty". *Academicus*, *13*(25), 226–234. https://dx.medra.org/10.7336/academicus.2022.25.14

Rosenberg, A. (2005). *Philosophy of Science: A contemporary introduction* (2nd ed.). Routledge.

Simons, D. J. (2014). The value of direct replication. *Perspectives on Psychological Science*, *9*(1), 76–80. https://doi.org/10.1177/1745691613514755

Slife, B. D. (2000a). The practice of theoretical psychology. *Journal of Theoretical and Philosophical Psychology*, 20(2), 97–115. https://doi.org/10.1037/h0091300

Slife, B. D. (2000b). Theoretical psychology. In A. E. Kazdin (Ed.), *Encyclopedia of Psychology* (Vol. 8). Oxford University Press.

Slife, B. D., & Williams, R. N. (1997). Toward a theoretical psychology: Should a subdiscipline be formally recognized? *American Psychologist*, *52*(2), 117–129. https://doi.org/10.1037/0003-066X.52.2.117

Stam, H. J. (2020). On the importance of theory and contagion. *Theory & Psychology*, *30*(6), 878–884. https://doi.org/10.1177/0959354320970642

Swedberg, R. (2012). Theorizing in sociology and social science: Turning to the context of discovery. *Theo Soc.*, *41*, 1–40. https://doi.org/10.1007/s11186-011-9161-5

Teo, T. (2020). Theorizing in psychology: From the critique of a hyper-science to conceptualizing subjectivity. *Theory & Psychology*, *30*(6), 759–767. https://doi.org/10.1177/0959354320930271

Thayer, L. (2022). The grand challenges of psychological science. *Observer*, January/February. https://www.psychologicalscience.org/observer/grand-challenges

Tyson, P. J., Jones, D., & Elcock, J. (2011). *Psychology in social context: Issues and debates.* John Wiley & Sons.

van Fraassen, B. C. (2011). Logic and the philosophy of science. *Journal of the Indian Council of Philosophical Research*, *27*(2), 45–66.

Walliman, N. (2011). *Research methods: The basics*. Routledge.

Westfall, J., Judd, C. M., & Kenny, D. A. (2015). Replicating studies in which samples of participants respond to samples of stimuli. *Perspectives on Psychological Science*, *10*(3), 390–399. http://doi.org/10.1177/1745691614564879