On the Impossibility of the Perfectly Empirical-and-Practical Theory of Teaching

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The emergence of a perfect theory of teaching, which is simultaneously empirical and practical, seems to have long been waited by many people concerned with teaching. The empirical character of the theory is demanded by the empirical-scientific researchers, and the practical character by the practicing teachers. The difficulty of fulfilling both of these respectively valid and reasonable demands, however, seems to have already been emirically proved by many of attempted failures. The author presents the thesis: such a perfect theory is logically impossible. The proof of the thesis is to be based not upon the empirical evidence; but upon the "free imaginary variation" of the situation where such a theory is formulated and published. The questions asked are: "Can such a theory remain being simultaneously perfectly empirical and practical, even after its publication?", "What are the meanings of making and keeping the theory secret?" and so on. The implications of the conclusively proven thesis will be explicated: such as the intrinsically historical and open-ended nature of the teaching theory in general, the newly foreseen relationships in the future between teaching practices and teaching theories.

The conclusion of the present article will be that the perfectly empirical-and-practical theory of teaching is impossible. As you see, the conclusion is simple and clear. My first effort here will be just to convince you of this simple and clear conclusion. However, the conclusion is so negative —— i. e. the "impossibility" rather than the "possibility" —— that you may indeed naturally wonder whether the conclusion has any value at all worth the time you will have to spend with me to understand it. Therefore, my second effort will be to invite you to share my view on its value for educational research, especially its implications for the theoretical research on teaching.

The Problem

Suppose a research project is proposed to formulate a theory on teaching, then what kinds of requirements will be made on the nature of the theory? Based upon my long practical experiences in teaching research, I can foresee that two kinds of requirements will be presented to the theory from two major groups of people concerned. "The theory should be empirical and 'scientific'", the first group of academic educational researchers will require. It usually means that the theory must be based upon "empirical" data with sufficient number of cases. and that the theory must not be derived only from mere "armchair"speculations. The second group of practicing teachers, on the other hand. will eagerly require that "The theory should be practical". Practicing teachers, at least in Japan, are tired of "unpractical 'scientific' theories" frequently formulated so far by many "scientific" academic researchers. These requirements are both reasonable and legitimate, I believe. In fact, whoever wishes to construct a theory of teaching will rightly wish to fulfill both of these requirements and will be very much satisfied if the theory he/she has constructed fulfills both of them. In this sense, we might say that the empirical nature and the practical nature, in combination, could be considered as the necessary and sufficient condition for an ideal theory of teaching. Just to simplify our argument here, let me put aside other natures perhaps desirable but peripheral for the theory ; such as the systematic nature, the easy-to-learn nature, the internal consistency, the well-structuredness and so on.

The Theory-X and a Theory-X

Let us call a theory that is perfectly empirical-and--practical by the name of a theory-X. We may allow and do not exclude the possibility that there may be many such theories. Thus, we can imagine to choose as our "Perfect Theory", from among all such theories, a theory which is the nearest to the perfection. Alternatively, we can even imagine the well-organized system of all such theories as the "Perfect Theory" we choose. Let us name, in any case, the "Perfect Theory" as the theory-X.

Before I prove that the theory-X is impossible, let me describe a little more in detail what the theory-X is.

First, that the theory-X is "perfectly empirical" would mean here : the theory-X is based upon the entire set of all the available data in the world on teaching, including perhaps all the historical documents in the world on teaching, all the records of any kinds on teaching practices in countries all over the world, and／or the reports and the data offered by the entire set of the empirical researches so far conducted in the world, and so on. In other words, the perfect theory-X has, in its data base, the complete set of data so far produced on the matter of teaching in every corner of the world and in any historical periods of the mankind. Lapet me quickly assure you that I am not at all going to be particular about the degree of perfection in order to prove the impossibility of the perfection. The perfect data collection may indeed be impossible, but this is not the point at all here. Rather, I am attempting to be most generous in allowing the theory-X to have the perfect degree of exhaustiveness as regards to the data collection in its data base. Perhaps there may be many kinds of ways to construct "a" perfect theory even on the same perfect data base, so that I would allow "the Perfect Theory", i. e. the theory-X. be the best among all the perfectly empirical theories constructed on the same perfect data base.

Second, that the theory-X is "perfectly practical" would mean here : the theory, when mastered by a teaching person, e.g. a teacher, will always, without exception, and remarkably improve the quality of the person's teaching practices. You may imagine, if you will, that the theory is verbally written and printed in a book form, or expressed in any media in any form. The point here is that after learning the theory, at any stage of his personal development, the person can improve himself／herself to be far better a teacher, and the teacher will eventually, after mastering the theory, be able to become a master teacher, excellent in the quality of his／her teaching practices. In a sense, a book of such a theory would be what a Japanese master teacher Mr. Tsuneo Takeda (1972, p. 82.) once wrote as the wishfully imagined book he "would not hesitate to pay any amount of money" to purchase, and as the mastery book letting him to know the essence of teaching which always tells him, without exception, the most successful and realistic ways of teaching. Again, let me quickly assure you that I am not going just to argue against the possibility of the degree of perfection as regards to the practical nature of the theory. Rather, I am just allowing any degree of perfection of practicality to the theory-X.

Now, I would like to continue our discussion on the premise that the perfectly empirical-and-practical theory described above will be accepted as the ideal theory. or at least as an ideal one, by all or most of both educational researchers and practitioners.

The Situation-X and a Situation-X

You may wish, just as I do, to have even a little glimpse of the concrete contents of the theory-X. Does the theory describe the psychology of learners and teachers, the teaching methods, the developmental stages of learners and teachers and so on? These are the questions on the "inner horizon", the content, of the theory. Frankly speaking, I have no conclusive idea at the moment. With my ignorance of the "inner horizon", I would rather hasten to go straight into the discussion of the "outer horizon", the situational context, of the theory. My ignorance of the "inner horizon" may sound to you as attributing a weakness to my following arguments. However, strange to say, it attributes a strength rather than a weakness. This is because the arguments based only upon the

explication of the outer horizon of the theory will still hold with respect to any theory-X regardless of its inner horizon. Obviously, this would attribute a great generality to my arguments.

We define a situation-X as the one where the theory-X, with the degree of perfection described above, has been formulated. Concretely, there will be many kinds of situations-X and their developments. Let us call "the situation-X" a situation-X which is typical and prototypical to all the situations-X. We will hereafter consider the development of the situation-X and the theory-X-in-the-situation-X.

The Natural Developments of the Situation-X

What will be expected as the natural developments of the theory-X-in-the-situation-X? The following developments will be expected.

First, once the existence of the theory is known to the general public, the theory will, sooner or later, become widely disseminated and will be learned by most or all of the teaching practitioners. Second, those teaching practitioners will improve remarkably in the quality of their teaching practices, which is the natural consequence of the definition of the theory as perfectly practical. Third, the time will naturally come, sooner or later, when the theory becomes so popular and so widely known to the public that the theory itself becomes a "common sense" to all people concerned. At this stage, the theory, which once was so surprisingly novel to all people, will perhaps no longer contain anything surprisingly new to anybody.

The Proof of the Impossibility of the Theory-X remaining for Long as the Theory-X-in-the-Situation-X.

In order to make the following argument for the proof of the impossibility clear and simple, let me assume the role of asserting the "impossibility", and let me assign you the role of asserting the "possibility". Needless to say, I will sincerely make my best efforts to help you while simultaneously doing my best also with my own role.

To begin with, my point is that the theory-X, after

having been completed, will, sooner or later, inevitably lose the character of being the theory-X. In other words, theory-X will never be able to remain for long the theory-X-in-the-situation-X. This is firstly because, when the theory-X is put into practice, the practice based upon the theory-X will be found not to have been included in the data base of the theory-X, thus the theory becomes that much out-of-date empirically. You may immediately protest against me, saying that this was obviously true and inevitable from the very start. I am, in my own role, willing to accept your protest. Nevertheless, your protest will never change the undeniable and unavoidable fact that the theory is becoming out-of-date. However, at the next moment, in your own role of defending the "possibility", you may begin to assert that the data base of the theory-X is so exhaustive that there must necessarily be included the data on teaching practices similar and／or equivalent to those produced by the theory-X. This assertion of yours may hold with theories in natural sciences if and where the nature will not be affected by the theory itself, on which point I will come back later. However, in our case of the theory-X of teaching, this argument of yours will in effect mean to assert that the theory-X is not only "empirically" deficient but also "practically" far less than being perfect. Let me explain the reason why. Since at least some teaching practices before the theory-X and those after it are, as you say, "similar and／or equivalent", evidently, the theory did not produce changes entirely impossible without the theory, and thus it is proven to be that much powerless. That is to say, the theory-X cannot be perfectly practical, since the qualitative improvements of the teaching practices are said to be that much minimal. As long as you assert the perfectly practical nature of the theory-X, it seems as if you must admit that its perfect empirical nature is destined to be denied sooner or later.

In addition, even if we suppose I accept all of your arguments above, I must still point out the simple fact that the theory-X will never be based upon the "practices based upon the theory-X" and that the so-called "perfect data base" of the theory-X evidently includes only those practices produced before the theory-X had appeared. Thus, the theory-X loses the

character of being perfectly empirical, just after even a single intrinsically and originally new teaching practice has been created by the theory-X.

Attempting to be more moderate about the practical nature of the theory-X, you may choose to assert that the theory-X does not create any novel teaching practices that have never existed before but it is still capable of improving those practices less than the best in quality. In other words, you may say that it is practical only to the extent that it helps qualitatively inferior —— inferior to the best in quality —— practices. However, I would point out again that this assertion will soon lose its power, because the number of those inferior practices will progressively decrease as the theory-X, with its proclaimed perfect practicality, prevails. At the limit situation, those teaching practices which the theory could help will eventually disappear, and thus the perfectly practical nature of the theory will also be lost before too long.

However, you may again assert that the merit of the theory-X consists in its power to maintain the level of the majority of the mediocre practices which, without the help of the theory-X, will soon deteriorate. This will mean that the practical nature of the theory-X is rather a conservative one to maintain the status quo and it will not help create originally new practices, which are better than the preceding best. Then, I may point out that the theory will not satisfy us as the perfect one and it will tempt us to seek a much more creative theory than just a conservative one. This situation itself also proves, in a sense, the impossibility of the theory-X.

Alternatively, you may wish to retain those "inferior" practices which the theory can assist to improve, so that the perfect practicality of the theory be preserved. This wish will lead to our next dialogue, coming in a moment, on the proposal to make and keep the theory-X secret.

Before getting into that dialogue, I would like to call your attention to the fact that the dissemination and popularization of the theory-X will affect not only the teaching persons but also the learning persons, e. g. children. For instance, after a while having become used to being the learners in the teaching practices based upon the theory-X, those children will change their "implicit knowledge" about teaching practices, so that they will no longer remain naive as before. This situation had never existed before. In addition, even some kinds of "explicit knowledge" could also be acquired by the children. The theory-X may have been practical because the learners were naive in terms of contents of the theory-X. Thus, these changes in the coditions of the children, in the situation-X, will surely affect the practical nature of the theory-X as well as its empirical nature, i. e. the impossibility to include the above situation, with less naive children, in its data base. This again proves the impossibility.

The Meanings of Mystification

To defend the possibility, you might wish even to consider the proposal to mystify the theory-X, i. e. to make and keep the theory-X hidden and secret from the public. Certainly, keeping the theory-X secret will help to maintain a level of its practical nature to some extent. The secretly inherited famous No-dance textbook of the 15th century in Japan, "*Fuhshi-kaden-sho*" written by the great master No-dancer Ze-a-mi gives a well known dictum : "Because it is kept secret, it is the flower [essence]. If it is not kept secret. it can not remain the flower." (Ze-a-mi, 1958, p. 103.) [trans. Yoshida]. An impressive magic show, for instance, cannot escape from turning into a common place trick no longer surprising to anyone, when and if all the details of the secrets of the magic are known to every spectator. A psychopathological practice effective with a naive patient will not remain equally effective with a patient thoroughly knowledgeable with psychopathological meanings of the practice. A tactic once effective in a battle, if known to the enemy, will not remain equally so afterwards. Certainly, the maintaining the secrecy of the theory-X, much more the secrecy of its existence, will help to keep the practical nature of the theory-X. However, then, I would dare to ask you what is the raison d'être of the theory-X. Was it not for the purpose of enhancing the quality of existing teaching practices? Besides, the theory-X will not remain secret for too long, since the increasing number of the practicing teaching-persons will know, sooner or later, the existence and the

content of the theory-X, and the prevailing practices by the theory-X will, at least implicitly, tell people the content of theory-X anyhow. Please keep, if you will, the theory-X completely secret by locking in a storage the entire existing copies of the manuscript of the theory-X, or please just burn to destroy them completely, then you will succeed in keeping the theory-X secret, but it will clearly be against the purpose of constructing the theory-X in the first place. Besides, by so doing, the theory-X will never have a chance to demonstrate its claimed practical nature.

Thus, the empirical nature and the practical nature are found to be somewhat contradictory, we can conclude that the simultaneous perfection of both can never be achieved. Incidentally, the Japanese word corresponding to English "contradiction" is 〈矛盾〉 (pronouncing "Mujun"), which is originally a Chinese word that meant 'a "halberd" and a "shield"'. The reason why the combination of "halberd-shield" had originally come to mean "contradiction" is known as follows. In the old country 楚〉 (pronouncing "So") in ancient China, there was a merchant selling both halberds and shields. He was claiming to his customers that his halberds are so sharp as capable of breaking anything whatsoever and also that his shields are so stout as capable of protecting against any weapon whatsoever. However. one day a customer came to ask him what would happen if one attempts to break his shield with his halberd. then he was unable to say a word. In our dialogue. it seems as if you, in your role of defending the "possibility". were selling the theory-X with a "perfect halberd" and a "perfect shield", i. e. the "perfectly practical" nature and the "perfectly empirical" nature. and I. as the defender of the "impossibility", asked you the question as to how your "perfect shield" could protect against your "perfect halberd". Thus, my argument so far may be considered as a modern version. in our field of educational theory, of the ancient Chinese episode above.

Here ends our dialogue for the proof of the impossibility of the theory-X.

Some horizonal implications of our Proof

What are the implications of our Proof? Since the "impossibility" conclusion is negative, does it have only negative implications that would discourage us from making any further efforts toward constructing the theory of teaching? On the contrary, there are many positive implications that should encourage and guide us in our concrete theoretical efforts in the future.

Among them, first, I would like to call your attention to its implication for clarifying the goal of our theoretical efforts. Since the perfect theory is evidently impossible, we no longer have to and need to aim at such a theory. We should make efforts otherwise. In other words, we no longer have to and need to be too rigidly concerned about : (1) the size of the number of cases on which our theory will be based, i. e. the size of our data base and／or (2) the degree of the universal practicality of our constructed theory. We will be allowed to be more modest and moderate to concentrate contentedly on constructing a middle range theory which is far short of being perfect in either of the requirements. Any actual theories would vary only in their degrees of "imperfection". This conclusion would liberate us from obsession on the empirical and practical perfection in our future theoretical efforts.

Second. a theory of teaching is different in its fundamental nature from a natural scientific theory of natural phenomena, an astronomical theory of the universe for instance, in that the former affects the phenomena of its study but the latter does not in the least. In other words, a practical theory of teaching, by its very practical nature, will and must necessarily overcome the split frequently observed among natural scientific experimental psychological researches and theories derived therefrom : i. e. "the split between researchers, i. e. external onlookers for whom internal processes are implicitly presupposed to exist, and subjects, for whom those internal processes are denied to exist," (Rubinstein, S. L., 1963. p. 259). Furthermore, the practical theory of teaching must enhance the informed level of practicing teachers in particular and of contemporary public people in general. With respect to psychology, a phenomenological psychologist

writes for instance : "It seems to me much more likely that psychology's data would consist of that collection of informed perceptions which are appropriate to today's level of community understanding. Tomorrow's level might well be different, for better or for worse, although hopefully it will be more useful, more enlightening, more profound." (Lyons, J., 1970, p. 28). Exactly the same would nicely apply to our theory of teaching, in that our theory would be practical corresponding to the "today's level of community understanding", hopefully ever increasingly higher and richer than preceding levels. And the objective of our theory would be to enhance the level and by so doing to improve the today's level of teaching practices. Thus, in this sense, a theory of teaching is embedded and involved in the historical, social and cultural processes of education : not only it is derived from the real processes but also it changes them. A theory of teaching is based upon the past society and culture, and it projects into the future ones. Therefore, as we saw above, it had to be kept secret so as to maintain its "perfectly empirical nature" for long, by blocking its projection into the future and thus denying any possible real emergent changes and∕or improvements in the future. In human sciences in general, that a theory is practical would mean that it is capable, actually and∕or potentially, of helping to change the human reality. This would mean that the theory is, by its own nature, destined to become old-fashioned, out-of-date and obsolete to the degree the theory is effective in bringing about the changes and also that the theory must continuously innovate and rejuvenate if it wishes to catch up the emergent changes in human reality, ——emergent changes in teaching practices in our case, ——which the theory itself, at least partially, contributes to bring about.

Third, a theory of teaching could be, by its nature, self-recursive. A theory of teaching could, in principle, include a theory of "teaching a theory of teaching". Thus, a theory of teaching should include in its data, among other existing teaching practices, also the teaching practices of "the theory of teaching" itself, which are to be harmonious with what the theory preaches how teaching should be and do. In this situation, then, its being and doing would be its best preaching. Thus, the presentation of the theory itself will turn out to be among the best and the strictest criteria of how the theory works well in practices. On the other hand, if the theory ever attempts somehow to sever its own "being and doing" from its own "preaching", then it would demonstrate itself to be, to that degree, less practical and thus less dependable.

Fourth, in our free imagination. of course, there could be many kinds of theories of teaching. We could imagine, for instance, that each theory is respectively located along the dimensions of the emirical nature, of the practical nature, of the richness of its insights∕- foresights and so on. Also we could imagine each theory as rooted in and based upon various small subsets, rich or poor, of the entire universe of real practices in the past and the present. Thus, although any one existing theory may never have the power to assist the entire existing practices in the world, every theory may still be able to find at least some small set of teaching practices it can somehow assist to improve. This would mean that. the potentially assisting theory and the practices to be possibly assisted by it are mutually seeking each other. Even a primitive theory of teaching, for instance, might be able to find correspondingly primitive practices that it could assist adequately, but it might never be able to assist any advanced practices. An advanced theory, on the other hand, may not assist primitive practices very well but might be essential for advanced practices of a highly refined nature. Thus, any theory, so long as it is seriously formulated in face of existing practices, could teach at least something to some subsets of teaching practices. At this point, we could imagine a harmonious world of various theories. where each theory finding or yet to find its own set of practices it can adequately assist to improve. Here a hierarchically well-ordered system of theories and practices would have to be conceived, which itself will dynamically and dialectically evolve in an eternal spiral development as the interaction of theories and practices continuing to create ever richer practices and theories. Each practice or theory has its own meaning in the system as a prototype, rich or poor, each contributing in its unique way to the evolution of the total-system or sub-system

of practices and theories. Evidently, here, not only practices but also theories are expected to improve along the evolution. Also, at times, some theories and practices may well be discarded as obsolete or dead along the evolution, each being situated in the history and the culture of the society.

As the fifth implication, I would dare to stress the importance of the "armchair" speculation in educational researches. Too strong demands for the presentation of perfectly "empirically objective and scientific"data, to a newly proposed theory, ——it seems to me——,- often intimidate researchers so much as to distance themselves away from speculating, dreaming, fantasying, and imagining in their theorizing. The natural result of this situation is evidently a short-sighted unpractical "empirically scientific" theory, lacking in any creative imagination, too proudly drawing its over-self-confidence in being "scientific" with sheer "empirical data". The serious problem here is that such a theory tends to be unaware of how tiny its data base is in comparison with the perfect data base, and also that it is unaware of how necessary much richer imaginary variations are to fill in too many a gap always and necessarily contained in its data base. Generally speaking, the educational process is, by its very nature, not only coservative, in inheriting and transmitting the past, but also progressive, in discovering and creating the new future. It is projected and is projecting. Thus, a theory of teaching must be based not only upon the solid past facts to be collected by being empirical but also upon the emerging future possibilities to be discovered by being imaginatively creative. The past and the future meets at the present, where realistic factual perceptual observation on practices and the romantic fictive imaginative creation meet, merge and marry. Theories of teaching in the future must hopefully be the children of such happy marriages, blessed in the present both by the past and by the future. They must be and can be empirical and practical in that sense and to that degree, but not in the unconditionally absolute abstract sense of being "perfectly empirical-and-practical". At this juncture, I plead for more "armchair" speculations in constructing creative theories of teaching. No empirical research could have

enabled us to discover our conclusion of the impossibility, for instance, since any number of empirical attempts to build the theory-X could have continued for ever only in vain without ever realizing that all such attempts are in principle destined to be failures. Only free imaginative variation of the theory-X-in-the--situation-X has enabled us, I believe, to discover our decisive conclusion, which would liberate us from vain efforts and could direct us to much more modest, realistic and fruitful efforts. This fact itself has demonstrated, I hope, the power of the notorious "armchair speculation." May I allow myself to be so pretetious as to say the following? : at least "One of the most important lessons which our search for a perfect theory of teaching teaches us is the impossibility of a perfect theory", as if imitating Merleau-Ponty's well-known saying "The most important lesson which the reduction teaches us is the impossibility of a complete reduction." (Merleau-Ponty, M. 1962, p. xiv.)

Finally, as I had indicated, we have so far discussed only the "outer horizon", the surrounding context, of the theory of teaching, without ever getting into the discussion of its "inner horizon", its contents. However, it would be self-evident that, when we are to consider the inner horizon, we should always take into cosideration all the points raised so far, in our discussion, with regard to the outer horizon.

A Concluding Remark

To reiterate, a theory of teaching can never remain perfectly empirical-and-practical for long, thus must always remain unfinished and open-ended : (1) because it can never include in its data base those teaching practices yet to be created by the theory itself, and (2) because it becomes progressively less practical as it becomes popularized so much as to become a common sense.

This conclusion may also apply to theories in much wider fields of human / social sciences in general, to show the general historicality of human endeavors in sciences, but let me be wise enough to refrain from letting my "armchair"speculation go too far and too wild.

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