

What is the influence of the Japanese culture on the Toyota Production System and its derivatives?

Lauri Koskela

University of Huddersfield, School of Art, Design and Architecture

Although the Toyota Production System (TPS) has been discussed in the West from the 1980's, it is still an enigma: there is no coherent and well-grounded explanation to it. On a superficial level, the characterization by Fujimoto (2005) of the development of the TPS would seem to give a clue: "emerged as the unplanned and unexpected result of ...seemingly unrelated innovations, improvements, and initiatives". If the Toyota Production System consists of unrelated ingredients, perhaps there are no grand theories behind it? Thus, the increasingly popular view of lean as a bundle of practices would be correct?

It is contended that this "lean as a bundle of practices" view is not correct. Indeed, there are a number of theories underlying lean, as the author has discussed in prior works. Here, the focus is on matters that function as tacit assumptions in human activities, namely those connected to national culture. The presentation aims at a clarification of the influence of the Japanese culture on the TPS and its derivatives. The aim is justified through three reasons. First, if lean is embedded in the Japanese culture, the question arises whether this is a barrier for its use elsewhere. This discussion point has existed already for some time. However, it continues to be timely as all substrates have not yet been identified (it is argued here). Indeed, the second reason is to pinpoint such substrates. The third reason is made up by the argument that the explication of such subtle cultural influences would generally add understanding on lean and facilitate its diffusion.

The presentation will cover ontology and epistemology inherent in the Japanese culture, and how they are reflected in the philosophy and practices of the TPS. However, also more specific phenomena in the Japanese culture, society and language, such as the mode of reasoning, the idea of family, ways of child rearing and the concept of *kata* are discussed. In the following, ontology and epistemology will be briefly introduced.

Regarding ontology, the question is about the contrast between thing and process metaphysics. As explained in (Koskela & Kagioglou 2005), the former holds that there are substances or things, that is, atemporal entities in the world. The other insists that there are processes, that is, intrinsically temporal phenomena. These metaphysical assumptions tend to strongly influence how the subject of the inquiry or action is conceptualized. The thing-oriented view seems to lead to analytical decomposition, the requirement or assumption of certainty and an ahistorical approach. The process-oriented view is related to a holistic orientation, acknowledgement of uncertainty and to a historical and contextual approach. Further, in the thing-oriented view, change tends to be seen as an abrupt step, where the process-oriented view allows for a gradual change. Arguably, the Western culture is largely subscribing to thing metaphysics, while East-Asian cultures (including the Japanese) orient towards process metaphysics. While these ontological starting points can be argued to explain many aspects of the TPS, one is paramount: continuous improvement. It has a natural place in the TPS, while in the West, there has been a need to specifically explain its nature.

Regarding epistemology, there have been two different starting points: Platonism and Aristotelianism. These two approaches have played a major role also in the formation of fundamental ideas of engineering and management. The briefest possible characterization of these two epistemologies is that Plato wanted to start from ideas, reason, whereas Aristotle preferred the world as the starting point for acquiring knowledge. In Western engineering and management, Platonic influences have been dominating (Koskela & al. 2017). The Japanese culture has an aversion to the abstract (and thus Platonic ideas) – worldly concreteness is preferred. This again is reflected in the TPS in many ways, going *gemba* being perhaps the foremost example. However, this cultural feature has probably also facilitated the adoption of Aristotelian ways of management, as seminally promoted by the quality movement.

The presentation is concluded through a brief discussion whether such cultural features underpinning the TPS and lean should be seen as barriers for adoption of lean in other cultural settings, or perhaps as opportunities for disclosing new spaces for innovation and improvement in these other settings.

References

Fujimoto, T. (2007). *Competing to Be Really, Really Good: the behind-the-scenes drama of capability-building competition in the automobile industry* (Vol. 22). International House of Japan.

Koskela, L. & Kagioglou, M. (2005, July). On the metaphysics of production. In: *Proceedings of 13th International Group for Lean Construction Conference*. (pp. 37-45).

Koskela, L. , Pikas, E. , Niiranen, J. , Ferrantelli, A. & Dave, B. (2017) On Epistemology of Construction Engineering and Management. In: *25th Annual Conference of the International Group for Lean Construction*. Heraklion, Greece, 9-12 Jul 2017. pp 169-176