**Theme 4 – Time and Motion Regained – Paul Adler**

**Intro:**

* Standardisation is the death of creativity.
* Time and motion regimentation prevents continuous improvement,
* Hierarchy suffocates learning.
* U.S. manufacturing is in the throes of revolution and assumptions like these are becoming the new conventional wisdom about work. Taylor is the villain.
* It asserts that quality, productivity and learning depend on managements ability to free workers fro the coercive constraints of bureaucracy. Insists that detailed standards implemented with great discipline in a hierarchical org will inevitably alienate employees, poison labour relations, stifle initiative and innovation and hobble an orgs capacity to change and to learn.
* What if its wrong? What if bureaucracy can actually be designed to encourage innovation and commitment?
* In claifornia GM-Tayota (nummi) joint venture has succedded in employing and innovative form of taylors time and motion regimentation on the factory floor not only to crat world class productivity and quality but also to increase worker motivation and satisfaction.
* Venture procedures appears to encourage rather than discourage org learning and therefore continuous improvement.d
* Seems surprising because for decades our attitudes toward work have been shaped by a chain of reasoning taht has led us to expect a vicious circle of escalating managerial coercion and employee recalcitrance.
* Reasoning
  + When tasks are routine and repetitive, efficiency and quality require standardised work procedures.
  + Highe levels of standardisation rob jobs of their intrinsic interest, reduced motivation and creativity.
  + Demotivating work leads to disfuncitonal employee behaviour,eg absenteeism, high turnover.
  + Counterproductive behaviour by the work force requires more authoritarian mang, more hierarchical layers and even higher levels of standardisation.
* In short taylorism leads to workforce discontent and union belligerence.
* Ventures experience flies directly in the face of this thinking. The second step in this chain of reasoning is false.
* Formal work standards developed by industrial engineers and imposed on workers are alienating, but procedures that are designed by the workers themselves in a continuous effort to improve productivity, skills can humanise even the most disciplined forms of bureaucracy.
* Venture shows that hierarchy and standardisation, with all their known advantages for efficiency need not build n the logic of coercion. Can build on logic of learning
* In practice the venture achieves three ends.
  + First, it serves mang by improving overall quality and productivity
  + Second, it serves workers by involving tehm in the design and control of their own work.
  + Thirds, serves the interest of the entire org, mang and workers by creating a formal system to encourage learning capture and communicate innovation and to institutionalise continuous improvement.

**The worst plant in the world**

* Nummi situated in general motors assembly plant in CA. Work used to be done along a assembly line.
* Over the years gm Fremont came to be what one manager called the worst plant in the world.
* Gm had low productivity, abysmal quality, drug and alcohol abuse and absenteeism over 20%.
* Reached its peak employment of 6800 hourly workers in 1978 declind steadily to little over 300 when it finally closed in 1982. Joint venture started that year.
* Fremont plant, Toyota production system. Cm responsible for marketing and sales, Toyota would do product design, engineering and daily operations. The new entity nummi would manufacture and assemble the car. Built wide variety of vechicles.
* Two companies objectives were complementary. Cm wanted to learn Toyotas production system. Toyota wanted to help defuse the trade issue by building lcars in the us. Needed to learn about us suppliers.
* 1983 nummi and union signed a letter of intent recognising the UAW as sole bargaining agent for the nummi labour force. In return UAW agreed to support the implementation of a new production system and to negotiate a new contract.
* Nummi formally organised in 1984, Toyota provided 100million capital, GM the plant. Hiring began in may.
* Every applicant went through three days of production simulations, written exams, discussion and interviews. Managers and union officials jointly evaluated applicants for the jobs.
* Over the flowing 20 mmonths nummi hired 2200 hourly workers, 85% od GM worker.
* First of 450 team leaders attened training program in Toyotas factory in japan.
* The nummi production system not only made people work harder, it made them work smarter as well
* By end of 1986 nummi productivity was higher than that of any other gm facility and twice as the old factory. Quality was higher.
* Absenteesism dropped to 3-4%.
* 1990 toyota announced that it would invest 359million in an additional assembly line to built a Toyota truck for the us market. So nummi hired 650 hourly wokers on top of 3100 plus 400 salaried personnel already employed. First trucks ready 1991.

**Fear, selection, socialisation**

* How is it possible to convert a plant from worst to best quality and from dismal to superlative productivity over the course of a few months?? Answers are not satisfying.
* Plant was closed 2 years, these 2 years of unemployment created good cooperation.
* Managers weeded out trouble makers in the rehiring process. But it actually rehired the entire union hierarchy and many well known militants. Very few were screened out.
* Third- made use of a comprehensive socialisation process during hiring to instaill a new set of values in the new work force. Tried to undercut the we-they division vetween workers and management by eliminating special parking and eating facilities.
* These 3 factors don’t explain the imporved motivation and greater satisfaction from a new system.
* Most critical piece of that explanation lies in the production system itself and in the policies and practices that buttress it.

**The NUMMI Production System**

* All factories have production techniques, procedures and policies, but these usually comprise not so much a system as an ad hoc accumulation of responses to chaning and often contradictory business and design demands.
* Nummi system is a finely tuned superbly integrated whole unit.
* The assembly line is a just in time operation that does away with work in progress and makes quality assurance the responsibility of each work station.
* The application of kaizen, or continuous improvement, includes an active suggestion program, constant refinement of procedures.
* Every machine and job is analysed to achieve max efficiency and qyality. Job rotation is standard.
* The Nummi approach has 2 distinctive features; a commitment to the social context of work and a focus on standardisation.
* Soical context- atmosphere of trust and common purpose.
* Maintains exceptional consistency in its strategies and principles.
* Basic structureal unit is the production team(350) each consisting of 5-7 people and a leader. Small groups encourage participative decision making and team bonding. 4 teams comprise a group led by a group leader.
* The primary purpose and responsibility of the management hierarchy is to support the production teams with problem solving expertise.
* No-layoff policy – job security is essential to an employees well being. Critical support for its overall production strategy because it reinforces the team culture and eliminates workers fear that they are jeopardising jobs every time they come up with an idea to improve efficiency.
* Radically simplified job classification system. Gm-freemont had 18 classes, nummi has 2. Gm-fremont had 80 hourly pay rates, nummi rate was 17.85 regardless of jobs except for team leaders.
* No seniority- performance or merit based bonuses.
* Standardisation – obbessive about standardised work procedures. The principla key to its success.

**Standardised Work**

* At gm-fremont industrial engineers did all the time and motion analysis and formal job design, and workers tended to view them with resentment or contempt.
* Problem- management assumed a divine right to design jobs however it saw fit.
* Supervisor would accept designed job, and would promptly discard it in favour of the more traditional kick ass and take names technique.
* Worker usually ignored bothe engineer and foreman and did the job the way they wanted.
* Standard practice was to slow down and make work look harder.
* At nummi, team members hold the stopwatch themselves.
* They learn the techniques of work analysis, description and improvement.
* This change in the design and implementation of standardised work ahs far reaching implecations for worker motivation and self esteem, balance of power and capacity to innovate and learn.
* Job design process- team members time each other looking for the safest, most efficient way to do each task. Pick the best performance and break it down into its fundamental parts. Compares results with other teams and records results.
* Involves every team member in a commitment to perform each task identically.
* Reduced variability leads to a whole series of interconnected improvements:
  + Safety improves
  + Quality standards rise
  + Inventory control grows easier and inventory carrying costs go down because the process flows more smoothly.
  + Job rotation becomes more efficient and equitable
  + Flexibility improves because all worker can work in parallel to respond rapidly to changing demands.
* If orders decline, nummi can slow the production line to produce fewer cars, in same situation gm-fremont had to lay off an entire shift.
* Standardised work has the overall benefit of giving control of each job to the people who know it best. It empowers the work force.

**Continuous Improvement**

* Standardised work gives continuous improvement a specific base to build on.
* It is not only a vehicle and a precondition for imporemt but also a direct stimulus. Problems will rise quickly with new work processe.
* Gm-fremont worker suggestions were apt to meet a brick wall of indifference. At nummi, when a team cant solve a problem on their own they seek help. Engineers available to help asses the suggestion and design its implementation.
* Difference between taylor and new system is like computer systems which are idiot proof and the systems that are meant to leverage and enhance users capabilities.
* Gm-fremont, work procedures designed to be idiot proof, relationship between production system and worker was adversarial. Standards and hierarchy were there to coerce effort from reluctant workers. If system functioned as expectedand the operator was sufficiently tractable and unimaginative, the two together could turn out a fair product.
* At NUMMI relationship of worker to production system is cooperative and dynamic. Instead of circumventing user intelligence and initiative, the production system is designed to realise as much as possible of the latent collaborative potential between the workers and the system. Workers made more than 10000 suggestion of which more than 80% were implemented.
* Idiot proof dominates workers. Worker interaction works better.
* Continual reiteration of this disciplined process of analysis, refinement, and re-standardisation creates an intensively structured system of continuous improvement.
* Learning orientation captures the imagination.
* The paradoxical feature such stories have in common is their enthusiasm for a form of disciplined behaviour that both theory and past practice seem to rule out. This paradox grows from our failure to distinguish between what taylor, bureaucratic production systems can be and what regrettably they have usually been.

**The Psychology of Work**

* Chain of reasoning which disciplined standardisation leads inescapably to coercion, resentment, resistance and seems to turn taylorism and bureaucracy into what is called an ‘iron cage’.
* T and b may have devastating effect on innovation and motivation, but their technical efficiency and their power to enforce compliance seem to be the perfect tools for dealing with employees assumed to be recalcitrant.
* Taylor at least occasionally endorsed this coercive view of work. ‘enforced adoption of the best implements and working conditions’
* Most managers believe that taylorism and bureaucracy will lead to alienate workers and squander their human potential. But the psychological assumption underlying this expectation is that workers are incapable of delayed gratification.
* Managers believe performance will improve as work comes more to resemble free play, however its widely known work is something that workers will always avoid.
* Nummi demonstrates the error of imputing infantile psychology to workers. Nummi successfully tap into 3 sources of adult motivation; first desire for excellence, second a mature sense of realism, third the positive response to respect and trust.
* Nummi production system and the training increased both the real competence of workers and their feelings of competence.
* Sense of realism- the understanding that unless nummi constantly improves its performance, competitors will take its markets and its workers jobs.
* Some workers take powerful motivation from the knowledge that they have to ‘earn their money the old fashioned way’
* Respect and trust that management shows workers in nummi ongoing operations. Eg,managers responded quick when to requests from workers and unions. Gave workers their own account to order supplies – trust.

**Power and Empowerment**

* Management and labour support NUMMI system. No one at nummi wants to go back to GM. Everyone feels that nummi is a far superior work environment.
* Two kinds of power, hierarchical power and the power balance between labour and management.
* Hierarchical layers, structure is not flat, has several well populated layers of middle mang, the function of the hierarchy is not control but support.
* Decisions made by broad vertical and horizontal consensus. More centralies than most us factories.
* Power of worker and the union local is still considerable. Power has increased. Enormously effective is its ability to make production problems immediately visible and to mobilise the power of teamwork. Implemented with trust and respect, both these features of the system create real empowerment.
* Give mangers enormous potential control over workers. The new system gives workers great positive power to improve production and great negative power to disrupt it.
* Union leaders and top management confer regularly on and off sidte to consider a broad range of policy issues that go far beyond the traditional scope of collective bargaining.
* Worker empowerment degenerates inot exploitation if changes at the first level of management are not continuously reinforced by changes throughout the mangagement hierarchy.
* Woker empowerment degenerates into abandonment if work teams fail to get the right tools and training. Standardised work, extensive training and a responsive mang are key to success.