9. Avoid Single Points of Failure & Unnecessary Rework

- Reliability -> multiple backups
- 3 levels: Dowels, glue, lashings, skin -> ordered
- Concept -> essential to pre-planning (think floats)
- Much rework & refactoring
- Overall system concept
- Degree of pre-emption
- More data on costs of rework & lesson sharing
10. Employ Models & Create Informal Sketches Where Useful

- Rigs, mockups, templates
- I sat in my kayak before I sawed anything!
- Sketched constantly
- Role of models is clear -> used, then discarded
- All about modeling!
- Model muddle
- Role of models mutates
- Too formal to sketch!
- Communicate & reuse -> a return to simplicity & clarity
11. Understand the Role & Value of the Expert

- Oversight & quality control
- Troubleshooting -> could fix any mishap!
- Selection of raw materials
- Lends confidence to try
- Engineering apprentices
- Deep vs surface learning
- Thrown in, isolated, mistakes surface later
- Re-examine how we teach & train -> master builders?

(Photo from http://www.kayakways.net/)

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12. Know the Most Precious Resource & the Most Ubiquitous

- On the critical path -> bandsaw (backup blades?)
- Needed in huge quantities -> dowels (enough?)
- Learned from experience -> clamps, clamps, clamps!
- Skilled people & money
- Reliable inventory of traceable requirements?
- Communication channels?
- Pay attention to all needed resources
13. Use the Right Tool for the Job

- Do you want an easier life?
- 10 minute or 2 hour tasks
- Doing 2 tasks in 1
- Well equipped boathouse & toolbox -> what & when
- Interchangeable / seamless
- General purpose & need considerable knowledge
- Transferable & long-term?
- Smaller, simpler tools, …
14. Master the Underlying Techniques to Capitalize on Tools

- Learn core skills & practice
- It is not all the hammer!
- Levels of complexity & use
- Techniques & tools blurred
- Can we name our core techniques -> vague & large in scope
- Does classroom translate to shop floor
- Highlight the foundational & transferable techniques of our discipline -> teach
15. Embrace Diversity & Pull Together

- Use natural talents
- Skills exchange
- Tasks made for 1, 2 & more
- Aligning as a team --> lashings @ midnight!
- Replaceable cogs vs integrated product teams
- Points on a learning curve
- Leverage competencies & blend personalities, attend to career paths
16. Provide for a Healthy & Safe Working Environment

- Dust & noise -> protection!
- Machines = DANGER!
- Seek sustainable pace
- Food, music, housekeeping
- Poor posture, RSI, artificial light, pizza, caffeine, burnout … a recipe for excellence?
- What’s in it for me?
- Prepare & tend to our working environment
17. Recognize that the Best is the Enemy of the Good

- My thumb nook!
- Undue precision
- The epiphany of a 17 hour work day on day 6 -> why is everyone else sleeping?
- Few benchmarks for efficiency & effectiveness
- Productivity -> controversial
- Being ‘done’ & ROI
- Good enough via prioritized requirements & tests
18. Watch that Urge for Closure

- Are we there yet?
- Frustration -> carelessness
- When the end is in sight, irrevocable disaster looms
- Deadline syndrome
- Hasty bug fix so as to deliver
- Actually demands MORE checks & balances
- Scrutinize activities of the final hours & don’t lose sight of the requirements
19. Conduct Early Testing & a Final Fairing

- We sat in them, we even dropped them... confidence
- Primary requirement taken on trust -> they would float
- Tested form & fit, not behavior (relied on expert)
- Care of the final fairing
- Early user testing, but does it continue?
- Too late & lacks rigor
- Needs to be integral with requirements at every step
20. Determine the Risks & Have a Back-up Plan

- Two week time window
- Compromised resource & Maine weather
- Delays -> 6 weeks later!
- But quality always 1st -> hard!
- Late projects the norm -> time IS critical
- Can’t anticipate everything -> easy to forget the environment
- Proceed with acceptable risk; then blame the weather!