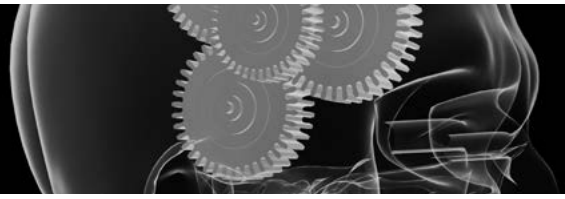
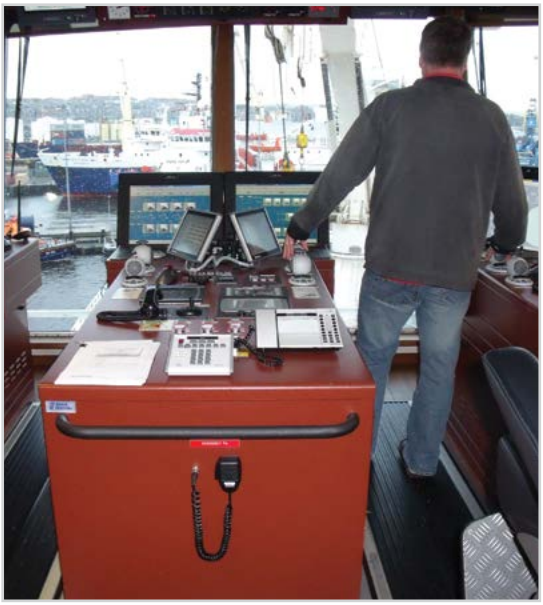


CASE STUDY 7 - Controls don't always do what you expect them to do…

What happened?

A new supply vessel was being delivered from its manufacturing shipyard in China to the North Sea. On its voyage across the ocean the crew discovered a quirk in the control system. Under manual control the ship's thrusters could be controlled using a joystick. However, the joystick had been configured to apply the thrusters in the direction that the joystick was pushed. This meant that if the joystick was pushed right, the thrusters were applied to the right, and the boat moved to the left. If the joystick was pushed left, the thrusters were applied to the left, and the boat moved to the right. Having discovered this, the crew decided this was acceptable and continued to use this control on several occasions throughout the voyage.

The ship was working off a fixed installation when it struck the jacket at some speed. The vessel had started to move towards the installation and the Master tried to move the vessel away by moving the joystick away from the vessel. Unfortunately this applied thrust in the opposite direction, accelerating the ship into the installation. The ship struck the installation leg, but no damage was caused.



What human factors were involved?

What did people do intentionally?

The crew accepted the non-intuitive controls
Although the joystick didn't behave as they expected, they believed that they would get used to moving it in the opposite direction and put up with it. This should also have been detected in acceptance trials.

What did people do without meaning to?

The Master pushed the joystick in the "natural" direction
When the Master was focused on maintaining the ship on station he automatically pushed the joystick in the direction that "made sense" to him.

Barriers

- Human Factors in Design
- Risk Assessment
- Managing Human Failures

What can we learn from this incident?

- Well-designed controls should "map" onto the things they control. For instance, some cooking stoves have four rings controlled by a line of switches down one side. Others have the switches positioned in the same pattern as the rings so that you can easily see which switch operates each ring.
- Controls should make "natural sense". If you want it to go left, push the joystick left. In this case the joystick control did not map onto the direction that people would normally expect the control to take them.
- Operator interfaces are often the last things to be installed, and some suppliers have been known to cut corners in order to meet delivery deadlines. Clients should specify requirements for well-designed, usable operator controls in the contract, and ensure these are met in acceptance tests.
- Don't put up with non-intuitive controls, change them and apply management of change.