

Skills Acquisition and Maintenance

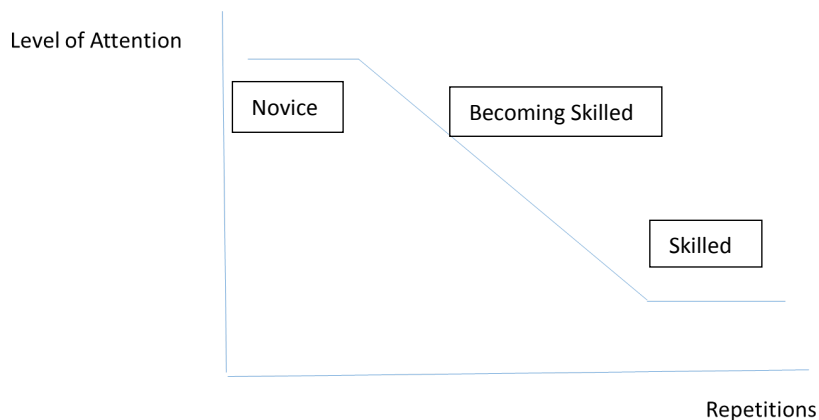
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At the end of Gareth Lock's presentation at a recent club Zoom meeting on "Human Factors in Diving", the following question was asked by a club member.

From our clubs perspective, what practical things could we implement to make a tangible improvement to our safety in diving? Is it simply implementing debriefing as part of our culture?

Gareth's presentation was interesting and well worth listening to, but perhaps missed an opportunity to provide some recommendations on what individual divers could do to minimise the risk of being involved in an incident.

Gareth presented a graph showing Level of Attention vs Repetition. He used this graph to explain why with repetition things become "automatic" and why people don't pay attention and don't think about things when they consider themselves "skilled" or "experienced".



So many divers regard themselves as "experienced" and therefore falsely think they know how to do "things". His comments and graph are undoubtedly correct. However from this same graph comes one of the major solutions to prevent unfortunate incidents for divers with any degree of experience, but in particular those who consider themselves experienced. That is **repetition!** If we don't continue to repeat skills then we will in fact slip back up the line which should necessitate more attention, but most do not repeat many of the skills associated with diving.

Gareth also made the point that if something happens that hasn't been encountered before, then we are in fact all novices and this increases the chance of an unfortunate outcome.

Conducting debriefs while useful is not the answer! An important part is skills acquisition, broadening of the skills set and **maintenance** of those skills. There is an old saying usually used when referring to muscles but it does apply here as well. *Use it or lose it.* Use those basic and emergency skills or lose familiarity with those skills and they won't be there when you need them.

How often do divers check themselves?

- When was the last time you changed to your spare regulator and breathed off it for an extended period? Could you find it? I carry out this check at every deco or safety stop.
- When was the last time you changed to your spare regulator *at depth* and breathed on it for an extended period, and during ascent? Is it set up for easy breathing or has it been detuned to prevent free flow? Is the hose a suitable length? Will the regulator provide the necessary flow rate when stress and being out of breath is added to the picture? I regularly swap regulators at depth.
- When is the last time you carried out a spare air drill with your buddy. My son and daughter know I can pull that stunt at any stage in a dive. And make sure you include buddy breathing. You may find your buddy's octopus regulator free flows because it has in fact been dragging in the sand and you might have to resort to buddy breathing.
- When was the last time you took your mask off and swam for some time with it off...and the colder the water the better?

The "If Only" video recommended by Gareth also raised a number of issues, many of which he covered, however there was one issue that to my mind was not adequately considered. The diver in question went from an absolute novice to "tech diver" in a very few years. Skills acquisition and experience takes time!

There are old divers and bold divers but there are very few old bold divers. Don't rush your advancement. Consolidate basic skills and entry level diving. You will get there. The dive sites will still be there. This has never been more important than these days where diver training is so rushed.

So let's consider how the training environment has changed and how that possibly relates to diving incidents.

When I was actively instructing, my business partner and I, two relatively new and enthusiastic Federation of Australian Underwater Instructors (FAUI), thought long and hard about training and how best to achieve the goal of producing a competent diver. We had no external agency telling us what to do. There were minimum requirements but we were free to go well above that and achieve the outcome in whatever way we felt appropriate. Part of our instructor training had included sessions by a prominent psychologist (the fact that his speciality was the psychology of sex was irrelevant), we learned about learning! We knew how Victorian diving schools were carrying out training at the time and felt it could be improved. We knew of the BSAC (British Sub Aqua Club) system which conducted training in the club environment and was conducted over several months and had the reputation of being very thorough and turning out very competent divers. We borrowed in part from that concept.

Our standard basic diving course was run over three weeks with two nights per week including both pool and theory sessions. That is, six full length theory sessions (1.5 to 2 hrs each) fully presented by an instructor, and six full length pool sessions of at least 1.5 hours. All in water training was carried out in an unheated outdoor pool that required the wearing of two piece, 5mm wetsuits and weight belts. And we were well and truly chilled by the end of it!

Many divers learn to dive in warm locations with warm water and a thin wetsuit and light weights. Those that become keen to pursue their new found sport (in the southern states at least) sooner or later need to consider thermal insulation; thick wetsuits, bulky dry suits and weights, lots of them. Most will just venture into the water and adapt. So what is wrong with this scenario? What is missing? **Repetition**. A diver needs to practice in a benign environment using thick suits and heavy weights.



Learning the skills of diver rescue while being able to stand up prior to tackling it in deep water. Note the use of full diving gear with full wetsuits, hoods and weight belts.

The pool we used for training had a very deep section because it used to have a diving tower at that end. Consequently, the first exposure to the deep end of the pool for the students was in a 1:1 ratio with an instructor.

At the end of each pool session, the students were required to snorkel between 250m and 500m wearing full SCUBA equipment. Yes, snorkelling with SCUBA is a skill that needs to be acquired and maintained!

At the completion of the practical training, there was a thorough skills assessment during the final pool session before the ocean weekend.

And at the end of each night, there was still time for a pizza with the students, further developing the relationship between student and instructor and just talking diving.

The reason for designing the course in this way was the recognition that acquisition of skills requires **repetition** and that repetition needs to be separated by time. Six mask clears in one session is no match for 6 mask clears a night for 6 independent sessions and then finally multiple times in open water. One or two goes at sharing air is no substitute for many sessions swimming around buddy and octopus breathing being constantly “hassled” by an instructor.

There was also lengthy written theory exam, not the standard multiple choice questions that characterise training now.

The ocean weekend was conducted over a full weekend from Friday night to late Sunday afternoon. The open water “check out” commenced with a long snorkel in full SCUBA out along Queenscliff jetty to the end, immediately followed by a ditch and retrieve. A ditch and retrieve is where all diving gear is removed and the diver places the regulator on the bottom, swims away, turns around and puts all the equipment back on. Many would criticise this as being too dangerous and perhaps they are correct, but this was very normal practice and demonstrated a degree of confidence in both the underwater environment, the equipment and the new diver’s abilities. Other skills that were assessed included a lengthy swim while buddy breathing and later octopus breathing with and without a mask.



Buddy breathing. It’s a poor quality photograph but if you look closely you can see water in the students mask.

And after all that, a full rescue of the instructor by the student was required. There was no warning, the instructor just became non responsive.

The entire ocean checkout occurred with a ratio of one student to one instructor. And yes we did fail students!

On successful completion of the checkout, the students were required to complete 4 hours underwater dive time. This was actual bottom time and usually consisted of 3 boat dives and 2 shore dives, with at least one dive to a maximum depth of 18 m. We introduced an extra shore dive through a small shore break since at the time the dominance of charter boat diving hadn’t yet occurred. On most ocean weekends, once the students had completed the required 4 hours, they were provided an additional dive with their buddy, without an instructor, to start the process of weaning them of any reliance on the instructor being present. Another very important skill.

It is important to note that once the ocean checkout was complete, the ocean dives focussed on acquiring the skills of *open water diving*, free from the concern that yet another skills test might be imposed on them. Skills were acquired in the pool. Ocean dives were for learning the skill of diving, not learning diving skills. This contrasts with many courses today where the skills training and assessment are incorporated during the ocean dives. The individual skills need to be separated.

With the passage of time, new instructor agencies entered the scene with inflexible learning regimes. Either because of their business model, or training model or because of a perception that students didn’t want long courses, we were forced to introduce the double weekend course which was run over two full weekends and two Friday evenings. In the early days, pool training was limited

to a 1:4 ratio but the pool ratio was increased 1:6 but our ocean ratio stayed at 1:4. This wasn't about excellence in training but rather profit and the corporate model.

Next time you see an instructor with a group of students. Count how many students and ask yourself how they can possibly supervise them all at once underwater, even in near perfect conditions, let alone in swell and mediocre visibility. We regularly reduced our ratio to 1:2 in poor conditions and even that was challenging at times.

At the end of the course new divers were encouraged to dive. Any thoughts about Advanced Courses were met with the comment "Get out there and dive and then dive some more. Come back after you have done 50 or more dives in as many different conditions and dive sites you can".

We were running a business but diver competence was more important.

The point of this description of early training is not to imply divers who were trained back in the "old days" as something special, but to emphasise that in a course of this type there was plenty of time for **repetition**. Once a trainee diver had combined mask and regulator clears multiple times a night over 6 nights they were very well practiced. Similarly for buddy breathing and ditch and retrieves. Each practiced over and over again with added hassling from us by continually removing or flooding masks and removing regulators. Key theory concepts were similarly covered over and over again with structured revision.

These days, a basic course can take as little as one long weekend. Theory is usually completed on line which has many inherent weaknesses and the quizzes are such that a relatively intelligent person knowing nothing about diving could pass. Then all practical skills and ocean diving are somehow all packed into one weekend of pool and ocean. A big ask. So what is one of the major differences between then and now, lack of **repetition**?

In many ways it is surprising there aren't more incidents. I feel confident there are many near misses that go unreported! And one thing we know for sure is that there is a very high dropout rate of new divers. Could this be related to the fact that they just don't feel comfortable in the water?

So how can you improve your chances of not being involved in an unpleasant or in the worst case fatal incident?

PRACTICE. REPEAT. AND PRACTICE AGAIN.