Executive Summary
Training Technologies

Purpose of the Study

Two primary factors are combining at this time to motivate, indeed require, a revolution in Navy training. Reduced budgets mandate personnel reductions on a scale not seen in many years. The reduced manning of ships and squadrons means that the remaining personnel must be trained to perform multiple functions in the operation and maintenance of increasingly high technology equipment. The rate of acceleration of technology content of weapons systems is both a challenge and an opportunity. The rapidly increasing levels of technology in Navy weapon systems demand a more highly trained Sailor. This is a major challenge for a training system facing significant budget reductions. On the other hand, the same advances in training technologies provide the Navy with the enabler to conduct much better training in a more efficient and effective manner. The purpose of this study was to examine ways in which the Navy training system could better take advantage of the wealth of training technologies already available, and to recommend areas where investment in training technology research would provide the greatest leverage for future Navy training requirements.

Observations

The panel had the opportunity to visit many training technology development organizations, both in private industry and within the Navy itself. The overwhelming impression was that the new technologies available and under development in the area of asynchronous distributed learning systems have the potential to truly revolutionize the way in which training and education are delivered in the future. The challenge will be to choose from the many available the best technology for specific subject matter of importance to the Navy.

Asynchronous distributed learning, enhanced by the many new technologies that support that methodology, seems to hold the greatest promise for streamlining Navy training. With the advent of programs such as Challenge Athena and IT-21, the bandwidth limitations that precluded extensive employment of distance learning at sea are being overcome. The capability to provide training just-in-time, on demand, anywhere, and anytime will provide the Navy with heretofore unknown opportunities for delivering continuous learning to the Sailors of the future.

Visits to several Navy training sites and discussions with the training leadership led to panel recognition that the Navy has a clear vision of the opportunities presented by advanced training technology. The problem is not a lack of awareness of what is available, nor any lack of understanding of how the opportunities should be exploited. Rather, the primary factors, that appear to inhibit the Navy from taking full advantage of the explosion in training technology are organizational and cultural rather than technological. The resulting lack of coordination is readily apparent in the inefficiencies

created by, for example, the absence of a coherent investment plan for training technology. This is not due to any lack of direction on the part of the Director of Naval Training. Rather, the lack of coherence results from the lack of a rational training management structure in the overall Navy organization. The panel sees the need for a single entity in charge of the Navy's training structure. There seems to be a cultural reluctance to make the organization changes necessary to create one.

Current investment practice prioritizes materiel/equipment over training and training systems. When budgets and schedule get tight, as they always do near the culmination of any development process, training is the first victim of the program manager's knife.

There is a serious shortfall in the area of measures of effectiveness (MOE) for training methods and systems. The panel repeatedly explored this area with the trainers, the acquisition managers and contractors. The answers were consistently disappointing. While everyone intuitively knows MOE assessment is important, it was either "too hard" or "no one wants to pay for assessment tools." MOE development can and must be done concurrently with technology research and development progress. It should be a part of that process.

The process for developing training systems does not seem to be uniformly applied. This results, at least partially, from the fact that the training management organization is not an equal partner in the acquisition process. Within the present Navy structure, training support for any new acquisition is all too frequently left until the end of the acquisition process, if not added after the system is delivered.

Recommendations

<u>Chief of Naval Operations (CNO) establish a corporate board to oversee training, with the Director of Naval Training (N7) as chair.</u>

In the panel's view, no other recommendation has a higher priority than the need to create a coherent Navy training organization under the Director of Naval Training. In this era of declining budgets, there simply is no excess funding available to accommodate the inefficiencies that result from the current fragmented training organization. The essential elements of this organization must, at a minimum, include:

- A clear designation of what entity is "in charge" with the <u>requisite responsibility and authority</u> for making the critical policy, budget priority, and training standards decisions.
- Key training personnel positions must be filled with top quality people, reflecting the critical importance of training to the Navy's mission performance.

<u>Department of the Navy (DON) integrate training into all aspects of the acquisition process.</u>

All too often, funding for training systems is the first to go when budget and schedule overruns begin to occur in the acquisition process. This is an attractive solution because the ship, aircraft, missile, etc. can be delivered without training support and the negative effects may not be felt for some time. However, the impact of shortsighted budget decisions that result in poorly designed or hastily acquired training systems will almost inevitably result in significantly increased life cycle costs for all new weapon systems. Reduced life cycle costs for all new weapon systems must be a primary consideration throughout the acquisition process. In the panel's view, it is therefore essential that training have an "equal partner" vote at the budget table.

<u>N7 with the Secretary of the Navy's (SECNAV's) Chief Information Officer (CIO) establish a standardized process for training product development.</u>

Information technology is at the heart of most modern training systems. In this world, nothing is more certain than the accelerating pace at which any new innovation becomes obsolete. The next most certain factor is the proliferation rate of multiple versions of a new family of software, with proprietary ingredients that prevent its use with other proprietary systems. Beyond this, the required integration of military training with military technology capacity enhancement means that the learner must be the center of military training technologies. Consequently, the question of establishing standards for developing and fielding new training systems becomes increasingly important. It is therefore prudent that a standardized process for training be uniformly applied across the entire spectrum of acquisition activities.

<u>CNO and the Commandant of the Marine Corps (CMC) articulate priorities for training technology so that the Chief of Naval Research (CNR) can sustain Naval Science and Technology (S&T) for training.</u>

It is very important that the Navy continue to invest wisely in the future by nurturing the types of S&T that will support future Navy training requirements. This is particularly true in those areas where private industry funding is unlikely to produce commercial of-the-shelf (COTS) products that will support future Navy requirements. It is unrelated to the fact that many new and currently available training technology innovations exist and have yet to be incorporated into the Navy's training programs. In order to ensure that the CNR understands and supports the future training needs, it is imperative that the CNO and the CMC provide the Office of Naval Research (ONR) with a clear articulation of the priorities for training technology research.