

TAILOR-MADE FOR THE INDUSTRY

Dredge Training

The dredging industry is complex. The stakeholders, port authorities, government, contractors, consultants, ship builders, crewing agents etc. all depend on their knowledge, skills and experience in their daily work. Crewmember, government official or surveyor, all must maintain their competence at the right level. And where a high level of technical skill and knowledge are demanded, training is essential. The Training Institute for Dredging describes the need for training within a diverse, multi-organisational international dredging industry. Competence can be defined as a standard requirement for an individual to properly perform a specific job. Competence management is the identification, assessment, development and implementation of such competence at organisational and individual level. Modern companies and authorities structurally organise and manage competence (sometimes now erroneously referred to in redundant plural form, ed.), planning and linking the right man with the right competence to the right job. The human resource department of any organisation should manage the competence of its employees, i.e. competence management to optimise the output of an individual.

Training

Competence management means stimulating and planning the personal development of an employee over the whole course of his or her working life. Raising personal working level enables an employee to improve his daily job or be promoted to a higher function. Stimulating this development irretrievably leads to the necessity for training. Benefits of training are evident and can be seen in the learning curve, as depicted in Figure 1. Training a person steepens his learning curve in reaching the optimal achievable level in developing his competence. This will inevitably reduce losses in production and risk. But, even more, training helps to raise this optimal achievable level.

This benefit of training can of course be measured in other than financial terms, however attractive this latter measure. The benefits of training can roughly be summarised under four subdivisions: economic advantages, quality improvement for sustainable development, safety improvement and risk reduction, and human-resource management.

Training is an important tool for the human-resource manager. On the one hand it provides him with the possibility of matching competence of an individual with the required competence for a certain job. On the other it is a tool to keep the employee interested and growing and thus committed to the company.

Categorisation

The competence of a dredging employee can be categorised in several ways. First of all, of course, in fields of knowledge such as hydrography, project management or technical maintenance. This is subdivision with respect to content. More generally it may be said that competence encompasses a combination of knowledge, skills, experience and behaviour used to improve performance. Several aspects may be distinguished here. Knowledge forms the basis. Understanding ‘why’™ enables one to anticipate changes in situations. A skill answers to ‘how to dredge or survey’™. Skills can only be acquired by exercise. One can acquire skills by means of on-the-job training, workshops, case-studies or with the help of a simulator. Experience enables the employee to assess a situation within a broader perspective. The transfer of experience is in many cases a lifetime experience, which can fortunately be speeded up by good personal guidance and consultant advice. However, as the old saying goes, ‘practice makes perfect’™ and experience is mainly gained only over time.

Finally, categorisation may be by level (Novice, Average, Expert) and position (Staff, Specialists, Crew) within the company of the employee. When training is set up at the Training Institute for Dredging it aims to find the right combination for each employee in order to attain an optimal result.

International Training

As dredging is an international business, so too is the training of those involved in the dredging industry. Besides adjusting training to competence, level and position, the set-up at the Training Institute for Dredging has to take into account the local culture of learning and local circumstances. How local circumstances challenge trainers to be creative in optimising training is illustrated in a journal kept during DTSPS training by Marco van Dijk, of the IHC Systems product department, whilst seconded to the Hydrographic Department in Nigeria:

‘After the flight, leaving the airport under the guidance of a heavily armed escort, on our way to the Onne Camp. For me the task of finishing some small remaining issues and to teach the people in the use of the Trimble RTK GPS equipment and the use of the Dredge Track Presentation System. But first it was a rendezvous with people I’ve worked with the first time. The hired Indian hydrographic surveyor was still doing his job over there. The Trimble base-station and dual RTK receiver was still performing fine. The Beaver Dredge already relocated many cubic meters where once only bush was.

‘After catching up with people, started to set up a few things to be able to start the training. The Indian surveyor (at the time we first met completely new at the site) in the meantime had adapted himself to the local work conditions. After starting with the preparation to train personnel (if the personnel to be trained is not always available, training becomes a difficult job) the estimated time for this is not going to be too long. Because to train people whilst normal work is going on in Nigeria is not an easy task. Besides the hydrographic aspects (surveying and processing these to prepare DTMs and plots on paper) the hydrographic surveyor is also expected to supervise the land

surveyors who are busy at the site. Each day effectively less time is available for teaching.

During the (hot) days of my stay, tried to put as much knowledge as I could into the heads of the trainees. In the meantime (while I'm there) try to play an advisory role: what to do with the obtained data, operation of GPS equipment, geodesy issues, base-station set-up, taking surveyed data and importing it into DTPS.

In the evening, back to the camp. Where life between the walls cannot be compared with the one outside of the walls.

Setting Up Programmes

So setting up training programmes and choosing the right training starts with selecting the target group, the level of the group and of course the aim and content of the training. Based upon this selection the necessary knowledge and skill will become clear. Taking into account these variables (categories) different training tools should be used to address the right competence. New insights and technologies make it possible to set up a balanced programme, for which several tools are available: simulator training, on-the-job instruction, lectures, workshops, tests, familiarisation visits and Interactive Training Modules.

As Confucius said, "I hear and I forget, I see and I remember, and I do and I understand". Nowadays education is more and more a participatory activity in which active training programmes play a part beside classroom lectures.

Survey-related Training

Education in survey does not stop at the basic education to become a surveyor. Continual professional development training on new systems is needed in this fast-evolving business. An example of this kind of training is that given by IHC Systems, a supplier of software linking survey data to the dredging process: Dredge Track Presentation System (DTPS). This program serves as a bridge between survey and dredging, enabling the dredge-master to optimise his dredging process towards required final delivery. In a four-day course the surveyor gets to know the full "ins and outs" of this system, preparing him to work with the DTPS with respect to dredging aspects and survey background.

With the new systems that put survey data onboard as important information for the dredge operation, it is important that not only the surveyor knows how to programme the system and upload data but also that the dredge-master should be able to work with it onboard. This demands a separate one-day course to get him started and familiarise him with hydrographic background aspects. It also enforces healthy mutual exchange and understanding between the two worlds, which leads to more efficient productivity.

Besides training on new systems, it is important that all involved in the dredging industry get acquainted with the basics of survey. Given the important role played by survey in many dredging projects, this provides people with the ability to understand the surveyor and place the data within the broad perspective of the whole project.

Concluding Remarks

When working with high tech and capital-intensive equipment within a complex working process such as that employed by the dredging industry, having the right personnel is essential for good operations. Good competence management in this matter should be accompanied by a policy on training. In this regard, training institutes for the dredging industry, like the Training Institute for Dredging, are challenged to provide tailor-made solutions for each company.

This also applies to surveyors, being as they are a vital part of the dredging community. Systems are being more and more developed to transfer the knowledge of the surveyor to the actual user, thus optimising dredging procedures. This brings the knowledge of survey data right into the centre of the dredging process. To make full use of these systems and data it is vital that there is continual training in survey in general, and in these new systems in particular.

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