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Using Reflective Journals to Promote and Enhance Self Directed Learning

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Abstract

This paper seeks to highlight/outline the benefits that can be achieved by using reflective journals to assist teaching in a practical class. The reflective journals were introduced to try and make up for the perceived shortfall in the level of experience and understanding of students on a new degree programme “Timber Product Technology”. The lecturers involved needed to find a way to get the student more involved in independent learning outside of their normal classroom environment.

The module is “Jointing Techniques and Furniture 1” and is taught in a practical workshop environment whereby the students learn the basic skills in wood jointing and making furniture. The students learn using a combination of hand tool skills and the use of machines in fabricating wood into furniture.

The lecturers have found the benefits of using a reflective journal with this cohort of students in this practical based module extremely beneficial. The students recorded mistakes that they made and how to avoid them next time around. They listed where tasks went well for them and why they thought so and they planned how they would tackle a similar task in the future.

We believe that using the reflective journals has allowed the students to think about their actions, before doing them, while carrying out the actions and after doing them. They are using Schön’s (1983) reflection-in-action (thinking while doing the task). They are reflecting upon the task and if it is going well or if they need to stop and re-evaluate what they are doing and make changes. They are also using Schön’s (1983) reflection-on-action (thinking after-the-event) they evaluate what they have just done and consider how they can do it differently and plan what they will do in a similar task thus directing their own learning.

Keywords

Reflection 1, Knowledge 2, Understanding 3, Independent Learning 4, Self-directed learning 5.

1. Background & Introduction

Dublin Institute of Technology lecturers within the wood skills area of the Department of Construction Skills recently developed a new programme called Timber Product Technology.

The Timber Product Technology (TPT) programme was validated in June 2011 and took in its first cohort of students in Sept 2011. This programme was awarded a level 7 Ordinary Degree by the National Qualifications Authority of Ireland (NQAI). The TPT programme caters for students that wish to gain knowledge in the furniture and joinery industry. This programme provides a high level of practical skills combined with the theoretical knowledge required to starting up a company.

Constructivism is the main pedagogy of teaching within the programme, students build upon their previous knowledge and bring their newly acquired knowledge into their next stage of their learning. “Thus individuals assign meaning to experience and at the same time construct knowledge from experience” (Lambert, Walker, Zimmerman, Cooper, Lambert, Gardner & Szabo, 2002, p. 7). Learning would be an active process whereby the students would observe, copy, practise and repeat until they had achieved the required standards in other words “learning by doing” (Gibbs, 1998). Students apply what they have learned to similar situations, thus increasing their knowledge. Earlier founders & proponents of the constructivist method of teaching were Dewey, Piaget, Bruner & Vygotsky (Lambert, et. al 2002). They all believed that learners should build on their knowledge and experience and apply it to new situations to create new knowledge.

The module chosen for this action research study was “Jointing Techniques and Furniture 1”. It is taught in a practical workshop environment whereby the students learn the basic skills in wood jointing techniques and making furniture. The students learn using a combination of hand tool skills and machines in fabricating wood into furniture.

This module is for first years and it is a year-long 10 Ect module, the students are timetabled for five hours instruction in a practical class in the morning with another three hours in the afternoon of studio time. As they are working in a workshop environment using hand tools and machinery. They have to be supervised at all times, this supervision is normally carried out by the lectures involved. So in effect they are spending the recommended eight hours per week associated with the module, learning in a practical workshop environment.

The lecturers providing the instruction and supervision introduced reflective journals in an effort to make up for the perceived shortfall in the level of experience and understanding of students on the new degree programme “Timber Product Technology”. We needed to find a way to get the student more involved in independent learning outside of their normal classroom environment.

2. Context & Rationale for Research

Prior to teaching the new degree programme the lecturers would have mainly taught apprentices in the wood trades disciplines. We noticed a difference with these fulltime students and established that it was because they were coming to us with little or no workshop experience.

The apprenticeship system in Ireland is governed by the Irish National Training and Employment Authority “FAS”. It is based on a “standard-based” model whereby apprentices must reach a certain standard as laid down by that Authority in order to continue with their training and qualify in their chosen trade.

Apprenticeship training consists of seven phases, both (on-the-job) with employer and (off-the-job) with a Training Centre or Educational College.

Phase 1 (on-the-job): is a basic introduction to apprenticeship, with emphases on safe work practices, working in industry and the basic skills of their chosen trade. Phase 2 (off-the-job) is delivered in a Training Centre while Phase 4 and 6 (off-the-job): are delivered in DIT and other similar institutes across the country. Off-the-job training gives the apprentice the opportunity to get full-time skills training and related education, and also brings all the apprentices onto a level footing by getting training in areas that they might not be possible in their various employments.

Phases 3, 5 and 7 (on-the-job): gives the apprentice the chance to improve and further develop the skills learned in the off-the-job phases by putting them into real life practice and experiences.

Having experienced teaching apprentices that come straight from a working environment into the practical classes having achieved the Phase 3 standard, we were aware of the level of understanding that students normally have, in these practical classes. In other words we would be aware of their prior knowledge coming from workplace environment and the zone of proximal development ZPD (Vygotsky, 1978) that we would have to work on.

While teaching students on the new degree programme “Timber Product Technology” we found that these fulltime students did not have the same experience or understanding as our previous apprentices. The majority of these students were Central Applications Office (CAO) students coming straight from secondary school. They had no workshop experience, and very few had any knowledge in hand tools or jointing techniques prior to starting this programme. A small percentage may have taken wood technologies as a subject and would have limited knowledge prior to this module but they were no comparison to the past apprentices that had at least one to two years industry and workshop experience. The apprentices were able to build on whatever knowledge they had gained in their workshop and industry environment and adapt at a much quicker pace to their college environment. This is because they have always been taught by engaging in each new task or activity as it arrives, “learn by doing”. Lave & Wenger comment on how adaptive apprentices are, they watch, they learn, they practice and they learn while completing the tasks.

The social relations of apprentices within a community change through their direct involvement in activities; in the process, the apprentices’ understanding and knowledgeable skills develop. (Lave, & Wenger, 1991, p. 94)

3. Aim of Research & Research Objectives

Main Objective

The aim of this action research study was to determine if using reflective journals would engage the students in independent learning thus developing them as self-directed learners. The reason for choosing to carry out this action research was to improve the teaching practice with this particular first year module, as it will establish the foundation for the following three years in related practical modules to come. Biggs and Tang (2007) would advise that action research involves systematically changing your teaching practice using “on the ground” evidence that suggests that the changes you make are heading in the right direction and enhancing student learning. Self-directed learning would encourage the students to build on their background knowledge and develop their metacognitive skills which in turn should prepare them for their future years of study. The student’s confidence and practical skills should improve with an increase in background knowledge.

Sub Objective

- 1 To explore the use of reflective journals to find out if they can encourage the student to become a reflective practitioner.
- 2 To determine if engagement with the reflective journals encourages the student to further research the wood skills area and environment, therefore increasing their background knowledge. (Having good background knowledge equips the student with first-hand information on what tools to use and how to better use them in a given situation. This is an area that apprentices would have a greater advantage over these fulltime students)
- 3 To determine how early promotion of independent learning influences learners attitudes to their learning.

4. Method

We arranged a one hour session outside of normal class time. During this hour we showed the students a power point presentation and explained what reflection is, the benefits of maintaining a reflective journal and the different models of reflection. We also emailed them the presentation for them to revisit in their own time.

What is reflection?

“Reflection is an important human activity in which people recapture their experience, think about it, mull it over and evaluate it. It is this working with experience that is important in learning”.

(Boud, Keogh & Walker, 1985, p. 19)

How can reflection help me in practical class?

We all reflect to some extent while working, for example, if something goes wrong in marking out or cutting the joint we make a mental note of it and try not to repeat the same mistake the next time. This is reflection in its simplest form.

What is a reflective journal?

A Journal is keeping a written record of events. A reflective journal is also about reading back over past entries and writing about newly acquired knowledge.

A reflective journal is a very effective tool in developing learning and deepens the learning experience.

There are many models used for reflection. We explained that in their practical class many of them were already using **Schön's reflective model**.

Schön's (1983) **reflection-in-action** (thinking while doing the task) as you need to reflect if the task in hand is going well or if you need to stop and re-evaluate what you are doing.

In "reflection-in-action", "doing and thinking are complementary. Doing extends thinking in the tests, moves, and probes of experimental action, and reflection feeds on doing and its results. Each feeds the other, and each sets boundaries for the other" Schön (1983) (as cited in Visser, 2010, p. 21)

Schön's **reflection-on-action** (thinking after-the-event) allows you to evaluate what you have just completed and ask what you would have done differently and allows you to make decisions on what you will do the next time around.

We gave the students an "Exercise" and asked them to:

- Think about your practical class last week.
- Is there anything that you would do differently next time around?

For Example:

- The sequence in which you approached each task.
- The method used to complete each task.
- The pace at which you worked.
- The end result.

In answering those questions what can you do, if anything, to improve on last week's work.

- As you are '**learning by doing**' you need to reflect on what you are doing as you are doing it and how you could possibly perform differently the next time around.

Schön's argument was as follows:

Professional practice is complex, unpredictable and messy. In order to cope, professionals have to be able to do more than follow set procedures. They draw on both practical experience and theory as they think on their feet and improvise. They act both intuitively and creatively. Both reflection-in and on-actions allows them to revise, modify and refine their expertise. (as cited in Finlay, 2008, p. 4)

Kolb's Experiential learning (1984) is going a step further than Schön's. The reflection -in-action was only taking place when things were going wrong, with Kolb's the reflection takes part on an on-going bases.

We showed them an example of **Kolb's reflective cycle** (Table 4.1) which allows them to plan ahead, by thinking back on how things progressed the last time around and that they were now in a position to plan their work better.

Example:

- I cut the tennon too narrow. Why did this happen?
- Was it because I did the groove first?
- Planning: Next time I'll cut the cheeks of the tennon first before grooving.

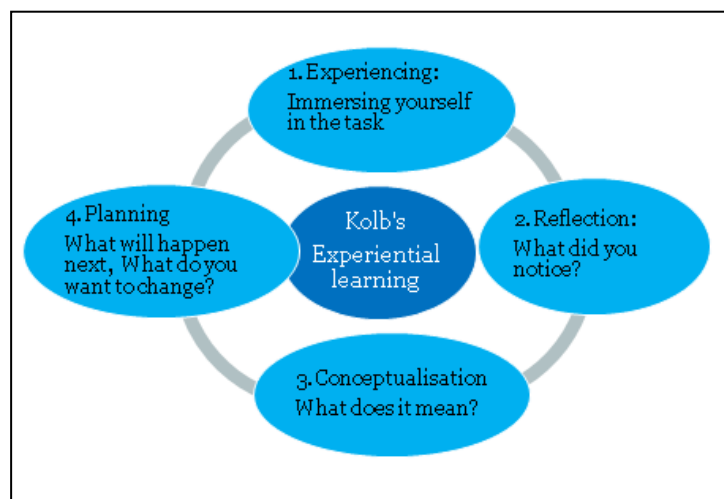


Table 4.1 – Example of Kolb's Reflective cycle

Gibbs Reflective Cycle comes full circle (Table 4.2) and tries to get the practitioner to reflect at all times. By starting off using basic reflective models the students should progress to a deeper reflective process. The more they engage in reflection the deeper their learning experience becomes. They begin to use their own system for analysing tasks and can apply their own learning to any task given instead of just similar tasks. In professional practice tasks do not always follow set procedures. We concur with Schön's argument, these students need to draw on both practical experience and theory to think on their feet and improvise in any given situation.

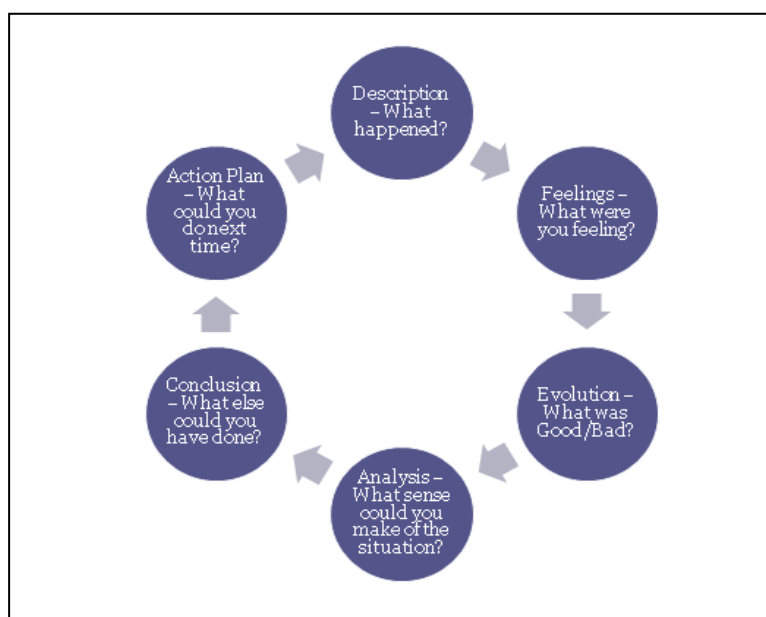


Table 4.2 Shows Example of Gibbs Reflective Cycle.

5. Putting Into Practice

In the practical class we provided the students with the hand-out shown below **Example 1 Sequence of events.** (Table 5.1.) We carried out a practical demonstration of marking out, cutting and fitting this joint following the given sequence of events. The students were asked to follow our example and record details of their work including time taken to complete each task, any errors or problems they incurred and how they would rectify them in the future.

High and Low shoulder Mortise and Tennon

- 1 Check timber for size and defects.
- 2 Mark face side and face edge.
- 3 Mark full position of mortise. Measure exact width of mortise.
- 4 Set mortise gauge to size of mortise and mark both pieces.
- 5 Mark off position of rebates / shoulders of tennon.
- 6 Cut cheeks of tennon. Cut mortise on mortise machine.
- 7 Machine both pieces on the spindle.
- 8 Cut and clean shoulders of tennon
- 9 Mark width of tennon and cut to size.
- 10 Fit tennon.

Table 5.1 Shows Example 1 Sequence of events

Most students embraced this task very well with a few needing more instruction as they were not recording the correct material or spending too much time recording every little detail.

For the following practical joint we followed the same procedure as before and provided them with a second hand-out (Table 5.2). The students were asked to reflect back on what they had written from their previous job. Many students noted that they had made mistakes or lost time in areas that they would be aware of now.

Overall I was reasonably pleased with the finished piece, although going forward I will need to set out my sequence a little more efficiently. I was very disappointed when the mitres did not line up properly and had I rebated first, I am confident the piece would have looked a lot neater. I took my time on this project but next time I aim to work faster. I really enjoyed this assignment and have gained more confidence in my ability. (Student A)

We also found that by trying to get the students to approach each joint in a planned sequenced way, that they were developing their “Cognitive skills” and that their motivation was increased.

Mitred Mortise and Tennon

- 1 Check timber for size and defects.
- 2 Mark face side and face edge.
- 3 Mark full position of mortise. Measure exact width of mortise.
- 4 Set mortise gauge to size of mortise and mark both pieces.
- 5 Mark position of groove
- 6 Mark off shoulders of tennon. (Allowing for removal of material)
- 7 Cut cheeks of tennon. Cut mortise on mortise machine.
- 8 Groove both pieces on the spindle.
- 9 Cut and clean shoulders of tennon
- 10 Mark width of tennon and cut to size.
- 11 Align shoulders of rail with stile and mark mitres on both pieces.
- 12 Cut and remove material from stile. Trim mitre with the aid of mitre blocks.
- 13 Trim mitre on rail and fit joint.

Table 5.1 Shows Example 1 Sequence of events

The next practical assignment for the students was manufacturing a frame using four joints that they had previously created. We did not give them any hand-outs and asked them to write their own sequence of events for this task.

6. Conclusions

As the year progressed they had to complete a number of coursework projects and we asked for a reflective journal for each project. The students were given instruction on how the journals were to be presented i.e., typed, in book format with contents page, sequence of events and reflections. There was a small percentage of coursework marks awarded for their reflective journals, increasing with each coursework project. As the size and work associated with each piece of coursework increased, the students were required to reflect more with each project. The journals were graded according to marking criteria set down for them. Many received high marks for content and presentation. We noticed that the students developed their cognitive skills as they approached each project in a planned and sequenced way.

The lecturers were very impressed at the level of detail some students included in their journals. We also found that by using the journals as formative assessment, the timely manner of the feedback received helped us to identify problem areas that some students highlighted or gave them cause for concern. As a result we in turn were able to spend more time on the areas that the students identified.

We have found a lot of benefits of using a reflective journal with this cohort of students in the practical based module. The students recorded mistakes made or problems that arose and established how to avoid / solve them in the future. They also identified techniques/practises that worked well and looked to use them in the future.

“Looking back now I realise I should have done a practice joint with the mitre before working on it in my project”. (Student B)

Using Schön’s (1983) reflection-in-practice and reflection-on-practice has proved to be very effective, with the students demonstrating reflective, evaluation and critique skills from beginning to end of projects. Mistakes that would normally occur in different follow on projects seem to be occurring less and less.

“I found that I am not great with my time management and make silly mistakes because I rush my work and end up taking longer by trying to fix my mistakes. For my next assignment/project I will try to take my time and double check my markings”. (Student C)

We found that the students became self-directed learners at such an early stage. Previously students would gather around machines and chat while waiting turns to use them, with this cohort the students were planning ahead to see what other areas of their project that they could progress with until the machine became free.

7. Future Work

During the year we spoke to the students about other methods of keeping reflective journals such as online journal writing and blogging. Many students were interested in the digital aspect of this as they were familiar with using Facebook and Twitter. The students were provided with a Power Point presentation on creating an account with Penzu.com. PENZU is a free online resource that allows you to create a journal and add to it wherever and whenever you want. It allows you to upload photographs and images.

We also introduced them to online blogging and showed them sites such as blogger.com and Tumblr.com both of these sites allow you to write, post comments upload photos and videos. A small amount of the students created accounts with Penzu and said that they found the mobile learning great as they were able to post their thoughts while travelling home in the evening while they were still fresh in their minds.

In the future we would look to explore the use of digital reflective journals because we asked the students to type their journals and with the trend in mobile learning they probably would be more willing to engage in this task as they seldom have the phones out of their hands.

As the projects are learning projects and the students are learning from their mistakes. We are looking to introduce a second chance assessment system where the students would be graded on their second attempt at a project. Thus providing the student with the opportunity to make mistakes and learn from them without it affecting their grades.

“Students should have a second chance to demonstrate their new level of competence and understanding. This second chance helps determine the effectiveness of the corrective instruction and offers students another opportunity to experience success in learning”. (Guskey, 2003)

We believe this could further demonstrate the effectiveness of using the reflective journals while providing an ideal opportunity for providing and receiving feedback.

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