NARRATIVE DESCRIPTION OF TASKS FOR EFFECTIVE PERFORMANCE OF JOBS IN TECHNICAL INSTITUTIONS: FLOW CHART APPROACH

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Abstract

This paper presented narrative description of the use of flow chart for effective performance of jobs in technical institutions. It explained the meaning of job and content analysis, and illustrated with diagram the breakdown of job into duty and duty into task. The job analysis of the construction of woodwork joint called through mortise and tenon joint was presented showing the terminal performance objectives and the procedural steps involved in the construction of the joint. Task analysis of content, the processes and decisions, major task and steps involved in performance of jobs where also shown. The narrative description and application of a flow chart in construction of through mortise and tenon joint where also shown. It concludes with recommendations.

Job and Content Analysis

A job analysis is a process used to determine what is job includes (Patty 1991). It is detailed description of the content of a job, and how it can be done for effective performance of workers. It involves breaking a job into duties and tasks. Duties are the major divisions of work in a job. Each duty is made up of a group of related tasks. The breakdown of job into duties is shown in figure 1. To conduct a job or content analysis of specified job, the content is broken down into attainable tasks stating the terminal performance objectives and the enabling objectives or procedural steps in sequence of operation. In case of a training programme or teaching and learning, the job or content may be referred to as topic or subject matter.

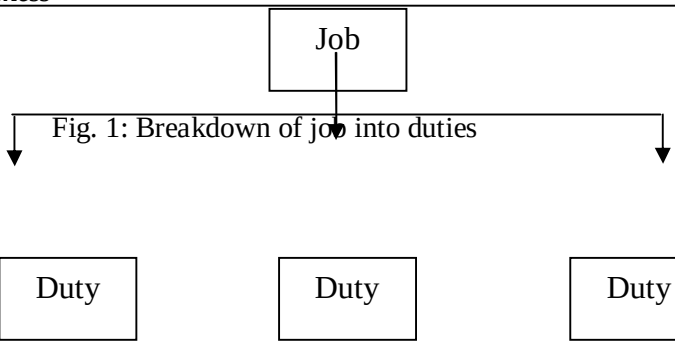

Fig. 1: Breakdown of job into duties

Task Analysis

A task analysis is a process used to determine how to perform a job. It describes the step-by-step process involved in performing a job. Any problem that relates to knowledge, skills and abilities require detailed task analysis. A task represents a series of actions leading to a meaningful outcome. Each task can be performed independently of other tasks, and has a definite beginning and an end. It is usually the next step after performing a job analysis. Figure 2 shows the breakdown of job into duties and duties in tasks.

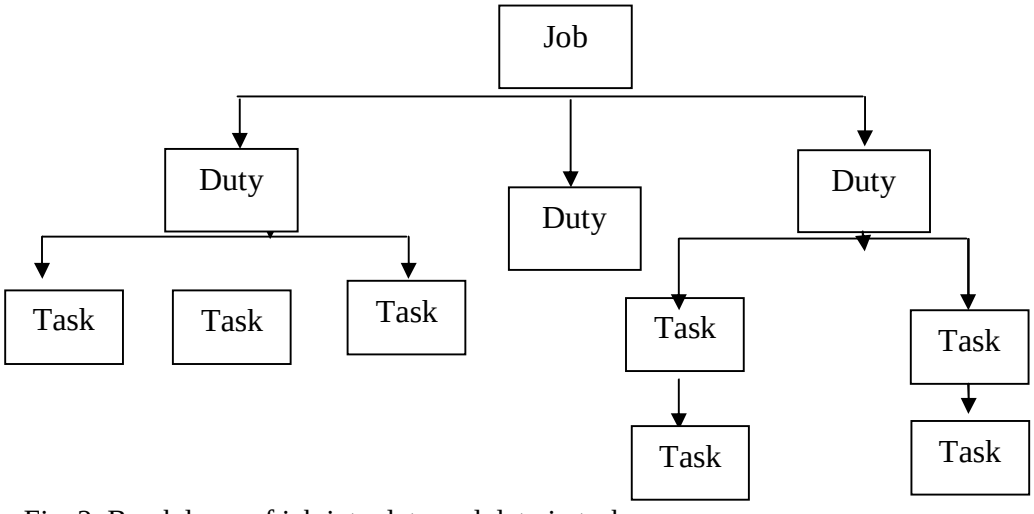

Fig. 2: Breakdown of job into duty and duty in tasks

Content and Job Analysis

Job: Joint Construction

Duty: Construction of Through Mortise and Tenon Joint

Tasks: 1. Marking out

2. Mortising

3. Tenoning

4. Assembling

Table 1: Content Analysis Specifying Terminal Performance Objectives and their Procedural Steps

Terminal Performance Objectives	Procedural Steps
1. Marking Out Provided with work piece, mortise guage, try square and pencil, mark out the mortise and tenon.	1. Position the work pieces on the bench 2. Mark the width of mortise and tenon Set up mortise guage for mortise and tenon 4. Gauge for mortise and tenon
2. Mortising Provided with mortise chisel, and mallet, mortise for joint	1. Place the face edge on the bench 2. Start mortising from the back Complete the mortise from the face edge
3. Tenoning Provided with tenon saw, bench hook, bench vice and work piece, cut the tenon	ramp the tenon member on the bench vice 2. Rip the first half of the tenon omplete the cut of member in upright position 4. Hold the member on bench hook 5. Cut the shoulders
4. Assembling Provided with mallet, paring chisel and members, assemble the joint	lace the mortised member of face edge up on the bench ix the tenon to mortise ightly adjust tenon to enter the mortise. If the joint did not fit well emove waste wood to gauge lines lean mortise corners ssemble the members est joint for squareness he joint is not square djust for squareness e joint is square, job is completed

Task Analysis of Content, Processes and Decisions Showing Major Tasks and Task Steps

Task Analysis

Job Task: Construction of through mortise and tenon joint

Major Tasks

1. Mark out joint
2. Mortise for joint
3. Tenon for joint
4. Assemble the joint

Major Task 1: Mark out joint

Task Steps

1. Position member on the bench
2. Mark the width of mortise and tenon
3. Set up mortise gauge for mortise and tenon
4. Gauge for mortise and tenon

Major Task 2: Mortise for joint

Task Steps

1. Place the face edge on the bench
2. Start mortise from the back
3. Complete mortise from face edge

Major Task 3: Cut the tenon

Task Steps

1. Cramp tenon member on bench vice in slanting position
2. Rip first half of tenon
3. Complete the cut of the member in upright position
4. Hold the member on bench hook
5. Cut the shoulders

Major Task 4: Assemble the joint

Task Steps

1. Place the mortise member of face edge up on the bench
2. Fit the tenon on the mortise

   If the joint did not fit well:

4.1 Check, remove waste wood to gauge lines in mortise and tenon

4.2 Assemble members

4.3 Test for squareness.

   If the joint is not square:

   Adjust for sqaureness.

If the joint is square, job is completed

Flow Chart

A flow chart is a chart made up of geometric symbols to which meaning have been ascribed and used to show the processes and decisions in a phenomenon (Dike, 1989). It shows the step-by-step progression through a task or task element. Therefore, it allows tasks or elements to be formatted conveniently. A flow chart is used to depict the sequence of events in some processes (Iwu, Ike and Chimezie, 2006). It is also used to show how different activities form a whole.

A flow chart contains more detailed information about the step-by-step procedures for attaining a task using geometric symbols. The boxes contain actions or steps. The diamond shapes represent decision points. The arrow entering boxes or diamond shapes represents the situation that signals the action or decision while the arrow leaving a box or diamond shape represent the consequence of an action or decision. When an action or decision has more than one consequence, the arrows are labeled to differentiate them. Flow charting presents a continuous analysis of tasks with the use of on-page connectors while the elliptical shapes represent the 'start' and 'end' for all processes and decisions. The flow chart for the construction of through mortise and tenon joint starting from marking out of the joint to assembling is shown below.

Narrative Description of Tasks for Construction of Through Mortise and Tenon Joint

The sequential descriptions of tasks for effective job performance to be represented in a flow chart are as follows:

1. Start
2. Position members on bench
3. Mark out width of mortise and tenon
4. Gauge for mortise and tenon
5. Place face edge on bench
6. Start mortise from back
7. Complete mortise from face edge
8. Clamp tenon member on bench vice in slanting position
9. Rip half of tenon
10. Complete the cut with member clamped upright
11. Hold tenon member on bench hook
12. Cut shoulders
13. Fit tenon to mortise
14. Is joint fitted well?
15. If no, remove waste wood from mortise and tenon
16. If yes, assemble members

17. Test for squareness
18. Is Joint Square
19. If no, adjust the joint
20. If yes, end.

Flow Chart of Through Mortise and Tenon Joint

Job: Joint Construction

Duty: Construction of through mortise and tenon joint

Tasks: Marking out
Mortising
Tenoning Assembling of members

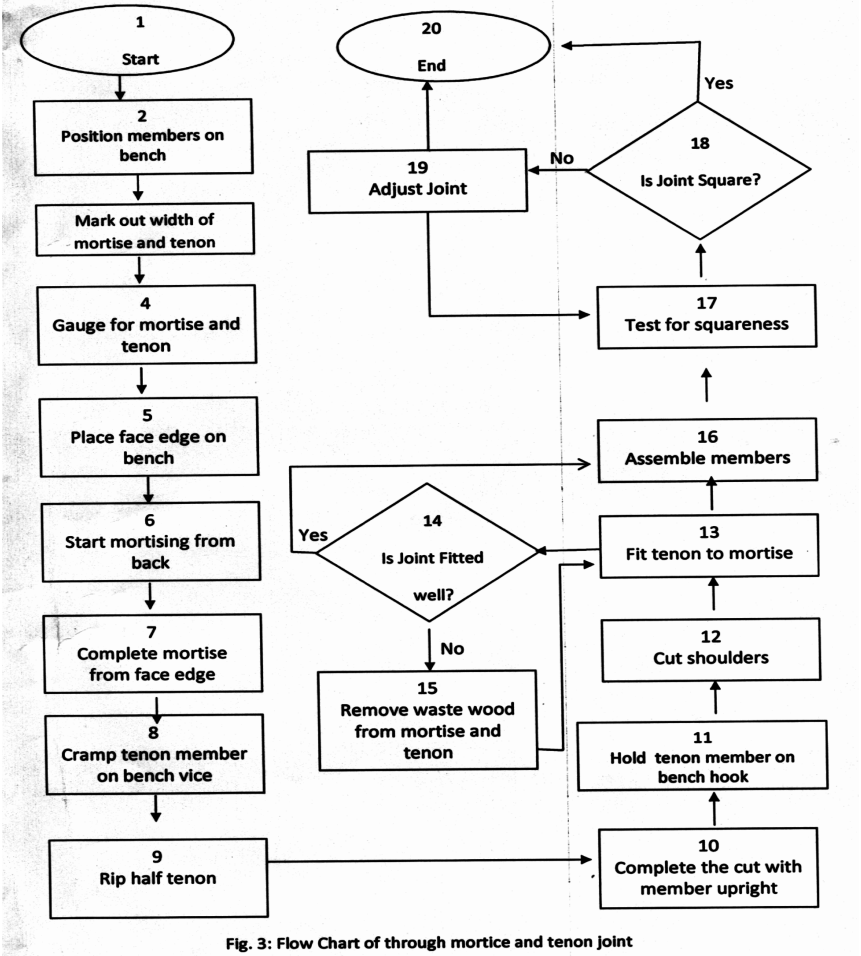

Fig. 3: Flow Chart of through mortice and tenon joint

Conclusions and Recommendations

The use of flow chart has been presented to show detailed information about the step by step procedure for attaining a task using geometrical symbols. It is believed that this will help learners to form a mental picture of what technical teachers are teaching, practice tasks and develop practical skills. An alternative to using a flow chart to present sequence of operation of tasks to be accomplished in teaching and learning situations is the use of words to convey a message. This is the traditional method. It is therefore recommended that technical teachers should adopt the use of flow chart in teaching the processes and decisions in practical tasks or in a phenomenon.

References

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