ISSN: 2472-3703 DOI: 10.6911/WSRJ.202001_6(1).0021

Application of Video Clips about Operating Identities in Practical Teaching

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Abstract

This paper discusses a new approach which can effectively combine college students' theoretical knowledge with their knowledge about on-the-spot practice. It has been discovered that college students' business knowledge has strong applicability. Of special importance is the demonstration of perceptual knowledge about factory workshops, manufacturing processes, and manufactured goods in practical teaching. Students' on-the-spot perceptual knowledge can be enhanced by playing the video clips about operating identities, which can be shot on the spot and used for guiding students' undertaking experiments so as to prevent experiment courses from becoming laboratory-rooted only and improve teaching effectiveness accordingly. The innovation or the value of this study is that the video clips about operating identities are made and applied in practical teaching and the techniques about video-clip making can be widely applied.

Keywords

Operating entity; video experiment; cost accounting.

1. INTRODUCTION

In colleges and universities in China, experiment courses are normally set for students (Ss) majoring in business, and most of these experiments are validating ones.[1] Initially, this sort of experiment is aimed to simulate an actual department, or an actual role's workflow or business process so that Ss can relate their theoretical knowledge with practice by performing paperwork operations and accomplishing prescribed procedures and formalities. Later, such software as Enterprise Resource Planning (ERP) sand table is purchased and applied.[2] With an ERP stand table, an enterprise's major material resources can be demonstrated, which include various internal resources like factory buildings, equipment, warehouses, stocked materials, funds, staff, orders, and contracts, and external ones like the enterprise's upstream and downstream suppliers, customers, and other collaborative organizations, including governmental administrative departments and social service sectors that provide enterprises with a variety of services. In this way, Ss can perform ocular and vivid "roadshows" by means of the ERP stand table and achieve the purpose of accustoming themselves to their actual working environment. The advantage of the sand-table-based experiment over the paperwork-based experiment is that Ss can have a sense of "immersion and presence". Indeed, both have made special contribution to linking theoretical teaching with practical teaching. But the shared deficiency of these two sorts of experiment is that most of the materials or situations are designed ones rather than entirely real and true environments. As a result, after the experiments, the impression of Ss on these experiments is still mostly on the classrooms or computers. Nowadays, video-clips are prevalent, and this deficiency can therefore be remedied

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by the use of the video clips about operating identities [3] . In this paper, the authors shall take experiments on accountancy as an example to discuss this subject matter.

2. THE SHOOTING OF VIDEO CLIPS ABOUT OPERATING IDENTITIES

2.1. Determining the Contents of the Video Clips about Operating Identities According to the Contents of Experiment Courses

Take the course named Experiment on Cost Accounting. This course is composed of experiments on six subjects, namely, material allotment, variety method of product cost calculation (PCC), batch method of PCC, step-by-step method of PCC, classification method of PCC, and quota method of PCC.

(1) The shooting of video about operating identities' material allotment. The experiment on material allotment is one based on the enterprise's supply process where the purchased materials are put into the warehouse and the stored materials are delivered. The contents of video should include the following: material purchasing process; payment process; material transportation process; process of examining, accepting, storing and shelving materials; process of material delivery from warehouse and consumption; and process of storing and keeping materials. The video must demonstrate a "three-in-one" picture, that is, the video must contain people, things, and the transmission of all kinds of accounting source files. The color of the video must be of high definition.[4] To make video clips, photographs of these files taken by using high pixel cameras are a must. They include bank payment voucher, transport receipt or invoice, value added tax (VAT) invoice (special or general), check list of arrived goods and materials, list of actual weights of arrived goods and materials, material received or warehousing entry, material requisition or outbound delivery order, subsidiary ledger for material purchase, hierarchy of general ledger, subsidiary ledger and memorandum book of materials. Video clips must be made about the user interface of the software "Supply Information Management System" and a static screenshot of the software must be taken,[5] and relevant videos highlighting the enterprise's Supply Section, Material Warehouse and Production Workshop must also be shot.

(2) The shooting of video about operating entities' method of PCC. The method of PCC can be categorized into two: one is basic (variety, batch, step-by-step), and the other is auxiliary (classification, quota). The PCC methods are accounting methods based on the production process of products, and they have three things in common. First, the final target is the product which undergoes the PCC. The target of variety method of PCC is the cost of each and every kind of product. The target of the step-by-step method is first of all the production procedure and that of the batch method is first of all the batch of products, but the focus of both will finally be on cost calculation. Second, they have the cost calculation departments—workshops. Third, they have the cost calculation process, which goes along the production process. The main contents of the video about operating entities include the material feeding process of product manufacturing, the machining process at workshop, the process of production stage transmission, and the storing process of semi-finished and finished products. The video clips about the manufacturing process include the video clips about the process of material feeding, the machining process at workshop, the follow-on machining process of semi-finished products, the process of semi-finished products being stored into their corresponding warehouses, and the finished products going through the formalities of being put into their corresponding warehouses. The key shots about the manufacturing process must include workers carrying materials, workers operating machines and equipment, semi-finished products being conveyed into follow-on workshops, workers moving semi-finished products into their corresponding warehouses, and workers moving finished products into their corresponding warehouses. All the shots ought to display human-machine interaction,[6] and ought to be highly coherent.

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Cameras are needed to take photos of accounting source files, which may include production task list, material requisition, dispatch list, employee payroll list, transfer list of semi-finished products, warehousing entry of semi-finished products, warehousing entry of finished products, repair list of returned products, general ledger, subsidiary ledger and memorandum book of production costs, subsidiary ledger for manufacturing expenses, various forms in the PCC process, PCC forms or sheets, and various cost statements. The following are the requirements about the relevant video clips: the formalities of the transmission of the source files between different departments and individuals must be closely combined with the logistics of the production process, the dynamic video clips must be closely combined with the static photos and pictures, and the color of both the video clips and photos and pictures must be of "high fidelity".

2.2. Splitting the Video Clips about Operating Identities into Smaller and Editable Separate Files

The video clips about operating identities tend to be naturally shot according to the contents of the experimental course. These video clips need to be further split so that they can be used for follow-on video making. The splitting of the video clips must meet four requirements: (1) The classification method of bookkeeping voucher should be adopted. By copying bookkeeping vouchers, mark the whole segmented video clips with a "total ordinal number" in a continuous order, the video clips about different chapters and sections with a "branch serial number", and each video clip with a "time duration number". Take for example the first segmented video clip about "Section 1: Cost Accounting Information System" of "Chapter 2: Accounting Information System". "001§2-1-01CBBB 4'25'" is the file's name, in which 001 stands for the total ordinal number, that is, the first video clip of all the segmented ones. It is expected that the total number of the video clips will not exceed 999, and that is why a three-digit number 001 is used. §2-1-01 is the branch serial number, meaning the first video clip of Section 1 of Chapter 2. It is expected that the total number of the video clips in each chapter will not exceed 99, and that is why a two-digit number 01 is used. CBBB 4'25'' (meaning Cost Statement 4'25'') represents the category serial number. The reason why Chinese characters are used is that such video clips are easier to be located and retrieved during the editing period. Of course, CBBB (meaning Cost Statement) can also be represented by the initials of its Chinese pinyin "Cheng Beng Bao Biao"—CBBB. 4'25'' is the time duration of the video clip, meaning four minutes and twenty-five seconds. The marking of the time duration is very important for the video editing because the video editor must arrange a time gap for this video clip to be filled in. (2) The recorded noises should be selectively removed. The noises on the spot may be from working machines, spinning fans and paint-spraying, etc. and may make the video clips sound inaudible. Hence, we need to use some video editing software to remove some noises, and this process might be called "muffling". Of course, those clear sounds can kept. (3) Some sounds need to be added into the video clip. When shooting the video clips, we need to record some different but clear voices for the follow-on video editing. The first is to add the clear voice to the scene. For instance, a clear sound of running machines can be added to the images showing the machines. The second is to insert simulated voices into the "muffled" video clips so as to make them sound true. For example, when shooting a video clip about a textile plant producing the cloth (finished product) with decorative patterns of flowers and birds, if the genuine or simulated chirps of birds are added, the video clip will produce some aesthetic effects. The third is to insert pleasant music to the "muffled" video clips. The fourth is to add some voiceovers and narrations into the video clip.

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3. THE MAKING OF VIDEO CLIPS ABOUT EXPERIMENTS ON OPERATING IDENTITIES

3.1. Following the Requirements for Micro-Course Contests and Making Video Clips About Experiments on Operating Identities

The requirements for micro-course contests can be found in the following two files: The 2015 Assessment Rules and Standards for National Collegiate Micro-Course Instruction Contest (Group of Higher Vocational Schools) and The 2016 Working Plan for Micro-Course Instruction Contest among Higher Vocational Schools in Jiangsu Province. According to these two files, the submitted micro-course video clip must be of MP4 format with a length of 5' to 10' (but no more than 15 minutes). Contestants "are encouraged to use, but not to restrain themselves to the use of, multimedia technologies like photos, animations, videos and HTML webpages in their instructions"; "The major teaching courseware supportive of the contestants' instruction is limited to the format of PowerPoint (PPT) and must be submitted as a separate file"; "The multimedia technologies must be used in the instruction to the nicety"; and "The instruction must highlight the student-centered principle and the pedagogical concept of organically combining learning with doing." The requirements can summarized as follows: student-centered (Video clips of teacher-student and student-student interactions are a must), teacher-guided (Video clips about how teachers improve instruction effectiveness are a must) and multimedia-supported (The diversity in the form of video clips is a must). In a word, the distinctive feature of micro-course is its "being micro" [7], that is, to provide the resources of highest quality in the shortest possible time so as to achieve maximum effects.

According to the above-mentioned requirements, the making of relevant video clips must have "five combines" and "five prevents". Specifically, the "five combines" are: The video clip about managing identities must combine with the courseware of experimental courses; the Ss' operating environments must combine with the genuine and on-the-spot environments; the techniques for Ss' experimental operation must combine with those of on-the-spot accounting; and "five prevents"; the use of various multimedia technologies must combine with the improvement of the quality of experimental courses; and the submitted single work of micro-course must combine with all the online courses. By "five prevented", we mean that the phenomenon of playing only the video clip about managing identities in class must be prevented; the Ss' feeling that the experimental operation is classroom-like must be prevented; the divorce between Ss' experimental techniques and the actual on-the-spot situation must be prevented;1[8] The use of multimedia for the sake of multimedia must be prevented. That is to say, some video clips have various forms but are substantially meaningless. The use of such video clips can disturb Ss' effective learning; and the making of video clips is purely for the sake of winning the contest must be prevented. For instance, as far as we know, some college teachers even paid as much as ¥10,000 to professional video making companies to make the video clips just in order to win a prize in the contest. However, the Ss do not benefit from the prize-winning video clips at all later on. Hence, we believe that the micro-course works submitted for competitions at provincial or national level must not be separately prepared but a selected part of an "online course" [9].

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1 For example, we find after some investigation that an enterprise's actual tax-paying is now done by the enterprise's accountant logging onto the Taxation Authority's website to fill up some e-forms and the tax money is deducted real-time according to the three-party (enterprise-bank-taxation authority) agreement. It is not like what is demonstrated in our experimental course that students are supposed to go to the Taxation Authority to pay taxes by means of cash check or money order, which is both disconnected with reality and against the accounting principles.

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3.2. Choosing Experimental Courses Suitable for Video Software Making

(1) The use of "Ulead Media Studio Pro 8 (Chinese version)" to make videos about experiment courses. For example, the making of the video clip about the titles of Cost Accounting Experiments. The clip should briefly introduce the textbooks used for the experiment course, contents, objectives, requirements, teachers in charge as well as the teaching reforms under way, directions and achievements. The length should be about 3' to 5'. a) Material preparation: Choose pictures to be used as video background template and pictures of experiment textbook (including reference books). As for the contents and objectives of and the requirements for experiments, the teacher can first of all get them ready in the format of PPT (Microsoft office 2013 version). Then, the teacher can use the "Recording" function under the menu of "Slide show" to record his or her PPT presentation and narrations (a microphone must be equipped), and save the file in MP4 format. The introduction about the teachers in charge of experiments needs to be presented in video clips except that the grouping of teachers is displayed in pictures. The teaching reforms under way, directions and achievements should be shown in an integrated form using pictures, videos, animations, and HTML webpages, etc. In order to improve the visual and auditory effects, background music also needs to be set. b) Process of video-making of the titles: With the Ulead Media Studio Pro 8 software open, select "Existing project template"—NTSC DV 24P (23.976 FPS, 48KMz), and click OK. Allot time lengthen for different materials and click INSERT to insert video or picture file on the V1 coordinate. However, the total time length must be within five minutes. Captions need to be onto the video. Click ┬ (Insert Title Clip) and a window will open for word editing where needed words can be typed in. Choose "TRANSPARENCY" for "background color" and FADE ABC002 for "animation", and click OK. At this moment, a black rectangular window will appear, which can be drawn to a proper place under coordinate V2 and set a time length so as to extend the timeline. Background music needs to be added: Select the AUDIO FILE folder under the INSERT menu, pull the selected file onto the coordinate A1 (beneath the coordinate V1), and make sure that its time length is the same as that of the titles. If the background music is longer, cut the unnecessary part off. If the background music is shorter than needed, the ending part of the music can be extended. When merging video clips, click FILE folder, select CREATE video file, and decide on the file name. Select the format of MPEG under VIDEO SAVE OPTIONS, click GENERAL under the template OPTIONS, and select the AUDIO/Video, click OK and then click SAVE and wait until the clips are merged. The configurations of the video clip are as follows: frame rate, 25 frames per second (FPS); frame size (i.e. resolution ratio), 720×576 (4:3) or 1024×576 (16:9); audio sampling rate, 48 KHz; and data rate, constant.

Then, use the Format Factory to convert the files of MPEG format into the ones of MP4 format. Pay attention to the fact that the configurations of the files in MP4 format must the same as those of the original files in MPEG format. Click OK and save the converted files in MP4 format in the OUTPUT FOLDER.

(2) The use of "Cantasia Studio 7.1" to make videos about experiment courses. When teachers responsible for experiment courses lead their Ss to do cost accounting experiments, they sometimes need to do some instructions first before they carry out the experiments. For example, genuine account books must be used when how to set an account book system is instructed. How to open an account for Tier 1 account titles like production costs, manufacturing expenses, etc and how to fill in the names all require the teachers to teach and demonstrate to the Ss so that the latter can emulate. It is the same case with Tier 2 accounts, subsidiary accounts or special account columns. For such purposes, the video clips with the contents mainly in PPT format fit very well. So, open the software Cantasia Studio 7.1, insert the selected PPT file, select RECORD with PPT file in full screen; Press Esc to exit RECORD mode after the instruction is finished. After the raw video is recorded, choose the resolution ratio of

ISSN: 2472-3703 DOI: 10.6911/WSRJ.202001_6(1).0021

either 720×576 (4:3) or 1024×576 and click SAVE to name and save the file in format of CAMREC. A dialogue box will ask: Are you going to edit the source file? Then, choose "record the source file" to enter into the EDITOR, which can be added onto the time coordinate below the editing window. When deciding how many PPT slides will be put under one file name, just mark them on the time coordinate with a small square. For example, if ten slides will be put into one file, just mark it at the tenth slide on the time coordinate. When the whole file is split, click MAKING/OUTPUT and MY RESOLUTION and choose the format of MP4. Then click OK and the video clip of MP4 format is produced.

(3) The use of "Coursemaker-V2.0" to make videos about experiment courses. Coursemaker-V2.0 can be used to make a mixed combination of pictures, PPT, animations and videos when the Cost Accounting videos require [10].

4. THE APPLICATION OF VIDEO CLIPS ABOUT EXPERIMENTS ON OPERATING IDENTITIES

4.1. The Materials Ss must Prepare for Cost Accounting Experiment

Every student must have a textbook for Cost Accounting Experiment. Teachers should buy beforehand all kinds of ledger sheets and vouchers for Cost Accounting Experiment. They should distribute every student different Allocation Forms and Cost Calculation Forms, which have been prepared in advance. The Ss need to prepare one carbon black ink pen, one red ink pen, one ruler, some office pins and glue.

4.2. The Examples of the Application of Cost Accounting Experiment

In the following, we shall use the experiment on allotting the material fees to explain the application of the managing identities' cost accounting experiment. The teacher in charge of the experiment will first of all make clear the experiment's objectives and requirements, and then introduce some basic information about Changjiang Company's production of tri-motorcycles. Suppose that there are three basic workshops: frame workshop, rear axle workshop, and assembly workshop. The experiment under discussion is on frame workshop. Production procedure: receiving steel material, cutting the steel and pressing it into frames. While the teacher plays the video clip about workshop producing frames, the blanking machine group leader Wang Chong will fill in the November 19 subsidiary ledger of band-sawing machine group: Requisitioning square steel bar (specifications: ϕ2.0×6300)120 pieces (0.02442 ton per piece in weight and ¥4200 per ton in price), cut into 336 pieces (specifications: 40×80×1220), 200 pieces of which are used for manufacturing Type A motorcycles and the remaining 136 pieces are used for manufacturing Type B motorcycles. Zhang Ming, material handler at the frame workshop, requisitioned material containers worthy of ¥400 (boxes and baskets for holding the cut self-made pieces) and engine oil worthy of ¥100. Zhang Ming is to fill up two material requisition forms in the Material Supply System, one for square steel bars, and the other for machinery consumables. At this moment, the teacher in charge of the experiment stops playing the video clip. The above-mentioned is also displayed in the video clip and Ss are required to do the following: (1) to fill up two material requisition forms paper; (2) to calculate the costs of Type A and Type B motorcycles according to the self-made pieces of square steel bar and fill up the material allotment forms (correct to two decimal places); and (3) compile material requisition accounting vouchers. At the end of the experiment, Ss are expected to submit the forms and vouchers. The reference answers are as follows:

The following are the main contents of the material requisition form and the material allotment form:

Costs of square steel bar consumed for Type A motorcycles = 120×0.02442×4200×(200÷336) = ¥7326.00

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Costs of square steel bar consumed for Type B motorcycles = 120×0.02442×4200×(136÷336) = ¥4981.68

Costs of machinery consumables of the frame workshop = 400 (material containers)+100 (engine oil) = ¥500.00.

In the requisition accounting voucher, the following details are recorded.

Table 1. The material requisition form and the material allotment form

Debit record (Dr):	production costs	basic production costs	Type A motorcycles (direct materials)	7326.00
			Type B motorcycles (direct materials)	4981.68
	manufacturing expenses	frame workshop	machinery consumables	500.00
Credit record (Cr):	raw material	main material	square steel bar (120 × 0.02442 × 4200)	12307.68
		auxiliary material	containers for material	400.00
			engine oil	100.00

One “material allotment form” and two “material requisition forms” must be attached to this bookkeeping voucher.

The background of the above-discussed experiment is the actual video clip about the workshop. This can improve Ss’ perceptual knowledge of the cost accounting of products of a workshop, remedy the defect of doing material allotment experiment on paper in the past, and increase the effectiveness of the experiment. What needs to pointed out is that doing experiments on cost accounting is learning knowledge through typical examples. In practice, material allotment is done on monthly or batch basis.

ACKNOWLEDGMENTS

This research is funded by Research Project on First-Class Key Disciplines of Industry & Business Administration under the 13th Five-Year Plan of Jiangsu Province (Project No. SJY201609), Research Project on Educational Informatics of Jiangsu Province (Project No. 20172172) and Professor and Doctor’s Foundation of Nantong Institute of Technology (NIT) (Project No. 201823; 201825).

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