ADVANTAGES & DISADVANTAGES of WEB-BASED ITEM BANKING & TEST CONSTRUCTION

IPMAAC June 20, 2005
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Santa Clara County Office of Education

COOPERATIVE ORGANIZATION FOR THE DEVELOPMENT OF EMPLOYEE SELECTION PROCEDURES

- Since 1973, the Cooperative Organization for the Development of Employee Selection Procedures, CODESP, has provided California and Nevada public school districts with employee selection materials, training, information and consultation needed to recruit and hire qualified classified (non-teaching) employees.
- Main office is located in Huntington Beach, CA.

CODESP SERVICES



- CODESP is a non-profit consortium of over 730 public school districts, which was formed to be a central resource for school district employee test materials.
- By utilizing our services, districts have improved their selection procedures to meet federal and state guidelines. Membership also eliminates the need for districts to hire additional human resource staff members to develop employment test materials.
- CODESP tests are customized to meet individual district's needs and requests are answered quickly with no extra costs or contracts. Fee is yearly.

BENEFITS OF ITEM BANKING

- Large groups of customers can use the same pool of questions without each having to create items on their own.
- Allows for more heterogeneous item statistics and construction.
- Multiple users allow for frequent item review, updates and submissions of new items.
- Easier search of items by subject matter.
- Streamlines test construction process.



DIFFICULTIES OF ITEM BANKING

- Keeping large item banks up-to-date.
- Preventing redundancy in item banks.
- Keeping items from being copied and disseminated to non-members.
- Determining correct key words to use for item classification.



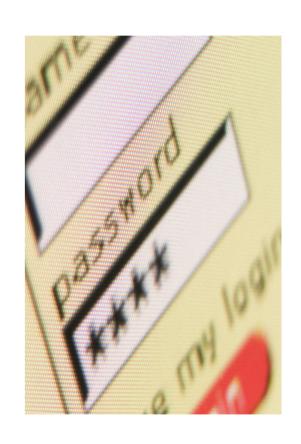
ITEM BANKING EVOLUTION

- From 1973 through 1992 CODESP test items were kept in files and were copied and sent to members through the fax and US mail.
- In 1992, CODESP Computerized Item Bank, C-CIB was implemented. The software was purchased from a private software company. This item banking software assisted staff in grouping items by item bank/subject area which simplified the search capability but delivery was still by fax or mail.



PASSWORD PROTECTED EMAIL

- In 2002 password protected email made it possible to eliminate US mail and fax delivery of test items.
- Customers chose items to include on their tests by completing a form, which included the code number of the items, and faxed or emailed it to CODESP staff who produced the final test and emailed it to back to them.
- In 2003 we began the search for a software developer to go webbased.



INTENT OF GOING WEB BASED



■ To create a powerful, yet user-friendly website and testing software package that would allow CODESP staff to easily search and select job related test items from computerized multiple-choice item banks that could be sent securely to customers for final test construction.

CODESP ITEM BANK

- Over 17,000 items.
- Items are reviewed periodically to ensure they are up-to-date.
- Most items are developed by CODESP staff with the assistance of Subject Matter Experts.
- New items are edited so that they have similar formats.
- When relevant, graphics are included with the test items.



WHAT WE WANTED



A system which would allow staff to:

- Readily create, store and search banks of multiple choice test items by subject area.
- Easily incorporate graphics into the items.
- Deliver test materials to members by posting them on their individual account home page.
- Provide customers the ability to build and print tests from their own site.
- Scan and score answer sheets to obtain item analysis.
- Post newsletters, links, alerts, tutorials, invoices, etc.
- Members ability to register for training classes online.
- Post interviews, supplemental application forms, writing exercises, performance tests, in a format that would be easy for the customer to edit and print materials.

CUSTOMER NEEDS



- Easy to use.
- Compatibility with district computer systems.
- No extra costs.
- Reduction in paperwork.
- Recordkeeping capabilities.
- Tutorials.
- Flexibility in customizing multiple choice tests and other test materials.
- Assistance in developing job related tests.

WE FOUND SOFTWARE PROGRAMS THAT WEREN'T DESIGNED FOR:



- producing customized tests from a single item bank.
- delivery of packets of test items hand selected for each request.
- on-line test review and construction.
- limited budgets.
- searching and storing of items by specific subject areas.

WHAT WE CHOSE

- Since we didn't want to raise the fees for our members in tight fiscal times we went with a public school district agency to design and build the program.
- The Santa Clara County Office of Education serves the districts in Santa Clara out of San Jose, California.
- Its Regional Technology Center assists their districts and others through contract generated projects throughout the state.
- Total cost for development, first year maintenance, and website was \$25,000.00.

CODESP AUTOMATED TEST SYSTEM-CATS

On January 31, 2005 the CATS system was implemented. Along with the introduction of the new software, a new website was unveiled.





COOPERATIVE
ORGANIZATION FOR THE
DEVELOPMENT OF
EMPLOYEE
SELECTION
PROCEDURES







About Us

Products

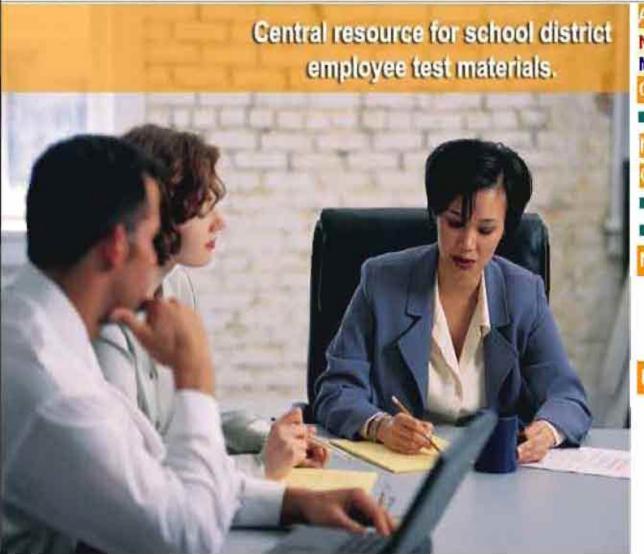
Membership

Links

Events

Resources

Thursday, June 9, 2005 2:32:44 PM



Alerts

New Features Added to CATS More Info...

CODESP Info Links

No Child Left Behind Act

News and Special Events

CODESP NewsLetter

- 2005 June
- NewsLetter Archive

Member Login

Member Login

Register Your District

Existing Member Registration

New Member Registration



Welcome Marianne Tonjes!

Welcome to your CODESP homepage. You can select member services from the links on the left, above and below. If you need assistance you can contact us by using the Contact Us link.

Alerts

Adding Figures to Tests

More Info...

CATS Improvements/Upgrades
More Info...

Need a Test Quickly?

More Info...

Membership Info for Next Year
More Info...

News and Special Events

- Sexual Harassment Training Sexual Harassment Training Article
- News Archive

CODESP NewsLetter

2005 - June

My Training Registrations You are registered to the following classes:

■ Shasta County Office of Education - CATS

Training - 8/2/2005 1:00 - 3:00

My Request Status

You requested the following packets:

■ Sample Request

Submitted On: 6/15/2005

Sample Request
 Submitted On: 6/15/2005

Finished

New

REGISTRATION FOR CODESP MEMBERSHIP IS COMPLETED ON LINE

CODESP Registration Wizard

District Information Address: County: District: City: What if my district is not listed above? District State: Website: Director / Zip Code: Asst. Supt: **Primary Contact Information Secondary Contact Information** Contact Name: Contact Name: Title: Title: Phone: Phone: Ext: Ext: Fax: Fax: Email: Email:

Title		Assistant Selection Analyst			
Phone	714	374	8644	Ext.	
Fax					
Email	ryan	@cod	esp.con	n	

Name
Title Selection Analyst
Phone 714 374 8644 Ext.
Fax
Email

Save Profile Cancel

BILLING TRANSACTIONS ARE RECORDED ONLINE BY DISTRICT

Member Receipt	
CODESP test	
Receipt of Payment	Receipt # 00000412
Amount Due * 1750.00	Amount Paid * 1750.00
Date Billed * 7/1/2005	Date Paid 4/29/2005
Account Code	Check Number 000001
Comments or Special Instructions	_
	✓ Email receipt after update

MEMBERS SEARCH OPTIONS



DISTRICT CONTACT INFORMATION IS AVAILABLE TO MEMBERS



CODESP STAFF CAN ENTER AND/OR EDIT ITEMS IN CATS

Question Maintenance Home Category A question category is required and is used as THE first or major grouping level for relating similar questions. This will enable you to segregate Accounting, Mechanical or Custodial type questions, etc. Painting Question Name A question name is required and will be used as a more "friendly" way to reference a question. Question 0003 Question Text Question text will appear on ALL tests as the actual question verbiage but is not required. You may display an image in lieu of text. E E A -- Size -- - Heading -- --- Font --Which one of the following brushes should be used on narrow moldings and edges? m 0 Question Type A question type is required and controls how you build the question choices and correct answers on the next page. Multiple Choice

ONLINE REQUESTS

Our new website allows clients the ability to request items by completing an online request form.



CATS Test Material Request Form

Job Title

Enter the job title in the box below. Copy and paste your job description into the Special Comments or Instructions section below.

Selection Materials

Date Needed Multiple Choice Test Items Custom Supplemental Application Form Custom Interview Questions Custom Performance Examination (explain below) Custom In-Basket Assessment (explain below) Custom Writing Sample (explain below)

Special Comments or Instructions



IV. Contact Information

Ryan Long

School District: CODESP test

JOB DESCRIPTION INCLUDED IN REQUEST

III. Special Comments or Instructions

ESSENTIAL DUTIES

Plans, organizes, schedules and monitors office activities and related ongoing projects; informs Executive Director of progress and problems; trains, assigns and directs the work of clerical

IV. Contact Information

Ryan Long

School District:

CODESP test

Contact Person:

Ryan Long

Phone:

(714) 374-8644

Ext.

Fax:

E-mail Address:

ryan@codesp.com

Request Date: 6/13/2005

IMPORTANT:

You should receive an email notification confirming that your request has been received by CODESP. If you do not receive an email, <u>contact us</u> or submit your request again. Thank you.

CATS REQUEST IS SENT TO CODESP OFFICE AUTOMATICALLY

CATS Request For Materials

A new request for materials was submitted by Ryan Long on 6/10/2005 9:23:08 AM.

The request ID is 1089. Details follow:

Member Information

District Name CODESP test

Contact Person Marianne Tonjes

Phone Number (555) 555-5555

Extension

Fax Number

Email Address marcodesp@aol.com

Date Requested 6/10/2005 9:23:08 AM

Requested Materials Due By

Job Title test

Multiple Choice Test Items August 01

Supplemental Application Form Not Requested

Interview Questions Not Requested

Performance Evaluation Form Not Requested

In-Basket Assessment Not Requested

Writing Sample Not Requested





Request Search Results

District	Joh Title	Contact Info	Date Requested	
CODESP test Orange	Electrical/Mechanical Technician & Maintenance	Ryan Long ryan@codesp.com (714) 374-8644	4/5/2005 1:42:31 PM	More Info
CODESP test Orange	dist. assessment specialist - newport mesa	Ryan Long ryan@codesp.com (714) 374-8644	4/18/2005 11:57:10 AM	More Info
CODESP test Orange	Account IB	Anya Garman anya@codesp.com (714) 374-8644	4/21/2005 4:12:27 PM	More Info
CODESP test Orange	Athletic Equipment Director	Ryan Long ryan@codesp.com (714) 374-8644	4/25/2005 7:31:20 AM	More Info
CODESP test Orange	test	Marianne Tonjes marcodesp@aol.com (555) 555-5555	6/10/2005 9:23:09 AM	More Info

CODESP STAFF FILLS REQUEST FROM ITEM BANK

Option of using existing template of test items.

Or

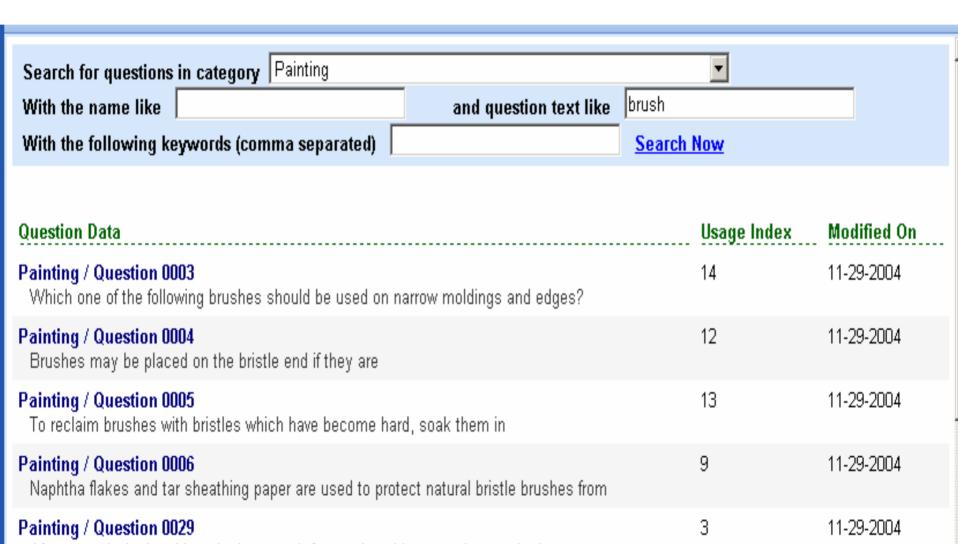
Creating a new template of test items.

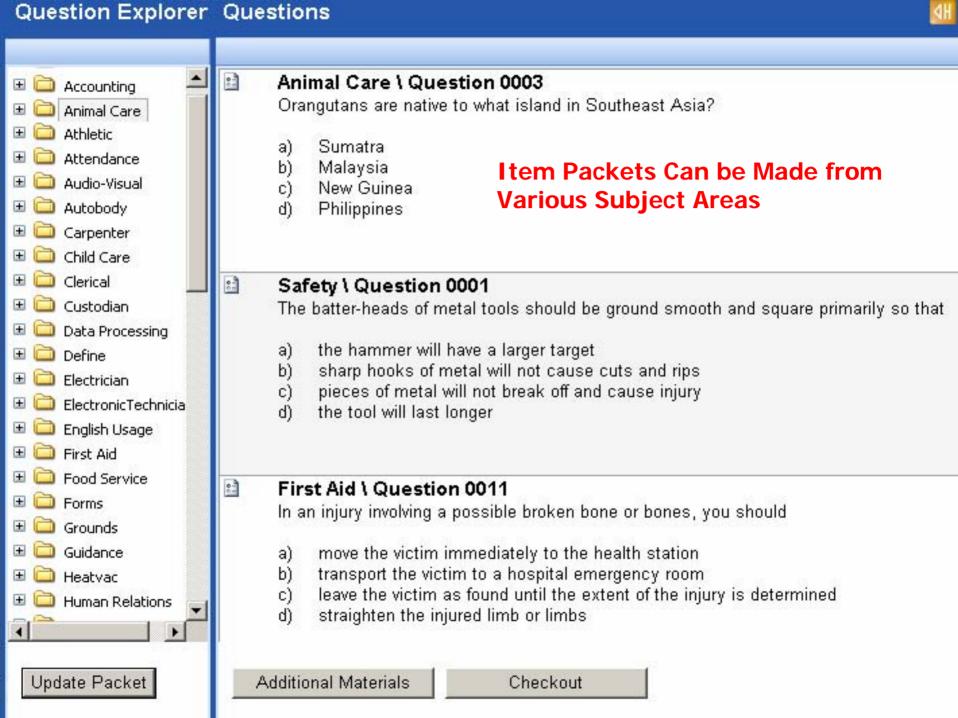
- Decision based on review of job description and available items.
- New items are researched if not available in item bank.

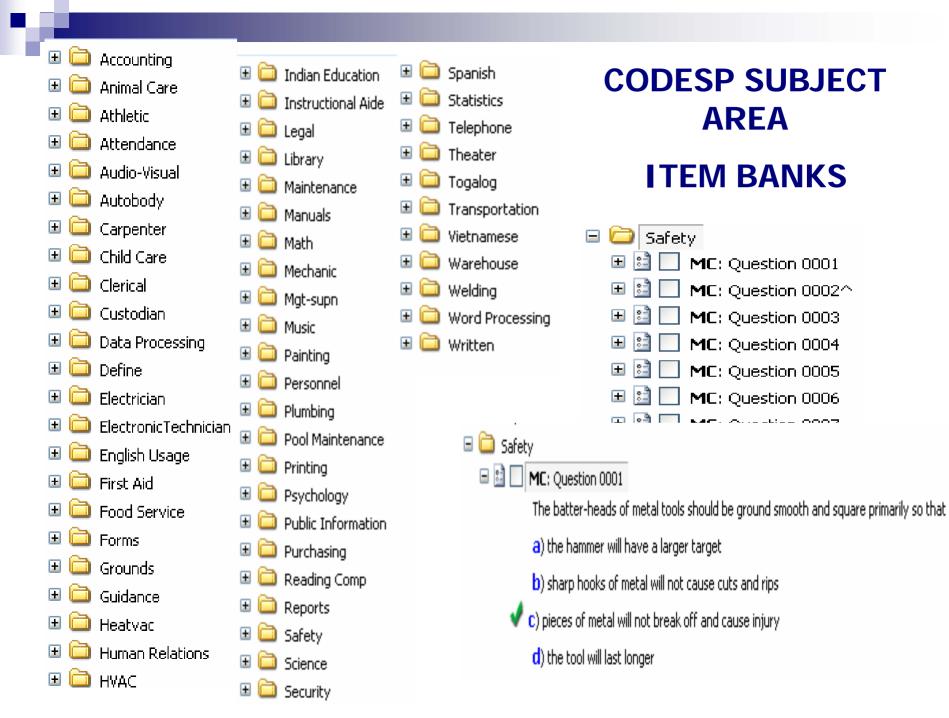
STAFF CAN BUILD A NEW PACKET OR USE AN EXISTING TEMPLATE

			3.00	
Templa	ate Maintenance		📶 Home	💹 Log
	Template Info	Created On	Created By	
COR	Accounting / ASB 9 Questions 0 Attached Documents	3/7/2005 12:15:52 PM	Gay Hampton	Build
ton	Accounting / Budget Accounting 30 Questions 0 Attached Documents	3/3/2005 2:28:18 PM	Anya Garman	Build
COM	Accounting / Clerk* 123 Questions 0 Attached Documents	2/11/2005 4:37:56 PM	Marianne Tonjes	Build
COM	Accounting / Payroll^ 61 Questions 0 Attached Documents	2/28/2005 2:50:51 PM	Gay Hampton	Build
COS	Accounting / Technician / Payroll^ 187 Questions 0 Attached Documents	3/1/2005 11:38:01 AM	Gay Hampton	Build
CON	Accounting / Technician^ 175 Questions 0 Attached Documents	1/27/2005 9:37:59 AM	Woody Koch-Wain	Build
Com	Accounting/Accountant 181 Questions 0 Attached Documents	5/20/2005 2:35:58 PM	Gay Hampton	Build
000	Atheltic Equipment - 52 52 Questions 0 Attached Documents	4/25/2005 12:53:22 PM	Gay Hampton	Build

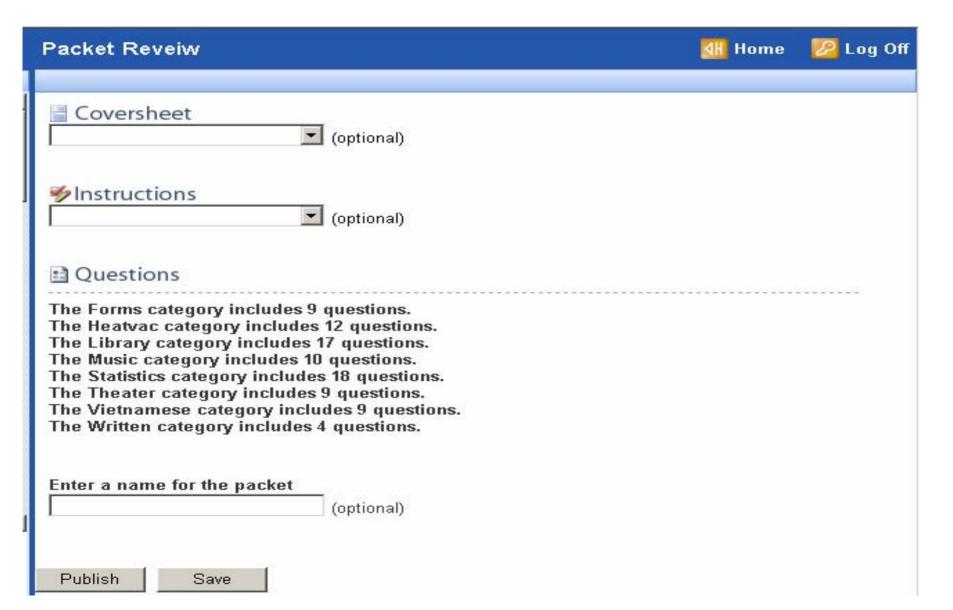
CODESP STAFF CAN SEARCH FOR ITEMS BY KEYWORD







PACKETS ARE GENERATED BY CODESP STAFF



MEMBERS GENERATE TESTS FROM THE JOB-RELATED PACKETS

- They can save the packets and edit them later.
- They can choose all of the items, print them and review them with a subject-matter expert.
- They can renumber them.
- A Selected Questions display keeps track of the number of items chosen by subject area as they build the test.

WHEN THE PACKET IS SENT TEST MATERIALS APPEAR ON CATS HOMEPAGES

Your CATS Request with the job title of 'test' has been processed and your materials packet (#922) is ready for your review.

To review your materials, log in to CODESP and click on the 'Create a Test' link from the left-hand navigation menu.

My Request Status

You requested the following packets:

test

Submitted On: 6/10/2005

Finished

Electrical/Mechanical Technician &

Maintenance

New

Submitted On: 4/5/2005



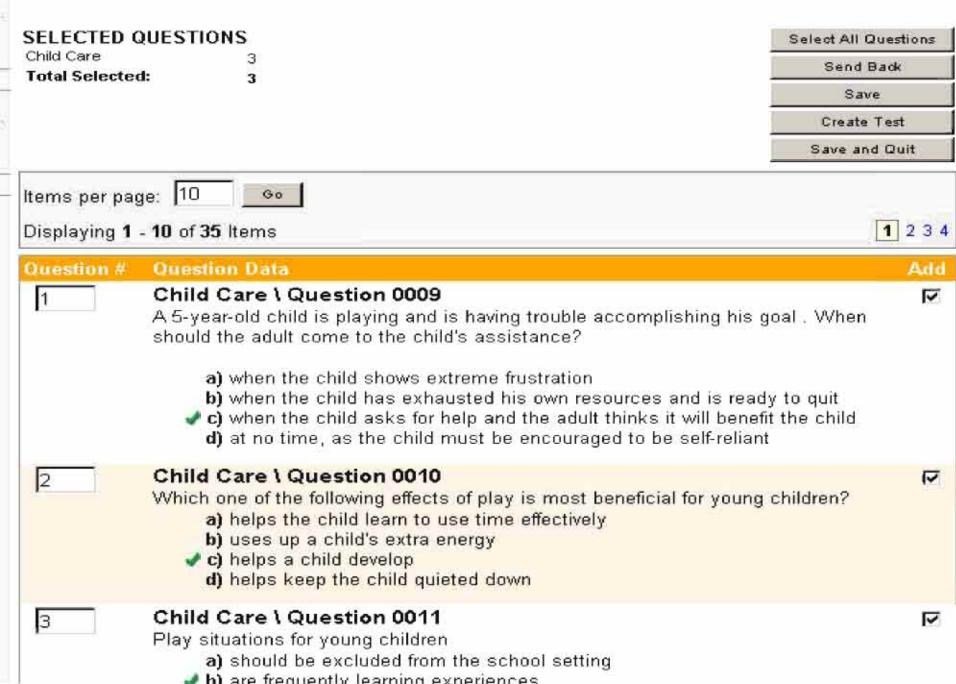
CATS Test Generator

SELECTED QUESTIONS

Safety 6
Electrician 5
Human Relations 4
Math 4
Mgt-supn 4
Total Selected: 23

Select All Questions
Send Back
Save
Create Test
Save and Quit

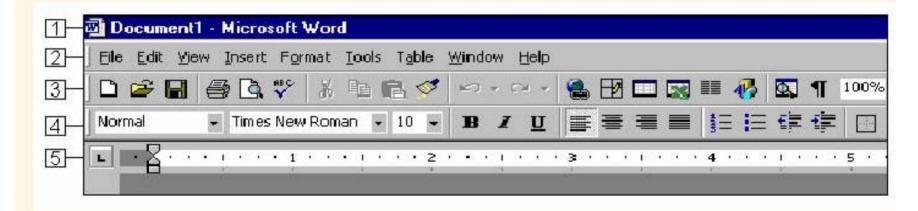
CATS Test Generator



FIGURES ARE INCLUDED IN MANY ITEMS

WORD FIGURE

Use the Word Figure below to answer questions regarding Word.



Word Processing \ Question F0201*

Using the Word Figure, number 1 is known as a

- a) Formatting Toolbar
- b) Menu Toolbar
- c) Ruler
- Jd) Title Bar

MEMBERS PRINT THEIR OWN TESTS

CATS Test Generator

Test Title

By default, the job title from your CATS Materials Request is displayed below and will be used as the test title. You can accept the default or provide your own test title below.

This field is required.

test

Time Limit

You can supply a time limit for your test. The time limit is printed on the generic cover sheet for the test.

This field is optional.

60

Next

- A 5-year-old child is playing and is having trouble accomplishing his goal. When should the adult come to the child's assistance?
 - a) when the child shows extreme frustration
 - b) when the child has exhausted his own resources and is ready to quit
 - c) when the child asks for help and the adult thinks it will benefit the child
 - d) at no time, as the child must be encouraged to be self-reliant
- Which one of the following effects of play is most beneficial for young children?
 - a) helps the child learn to use time effectively
 - b) uses up a child's extra energy
 - c) helps a child develop
 - d) helps keep the child quieted down
- 3 Play situations for young children
 - a) should be excluded from the school setting
 - b) are frequently learning experiences
 - c) are relatively unimportant
 - d) should be highly structured

CATS Test Library

Tests Remain in the Library Forever

Displaying 1 - 10 of 107 Tests			I ∢ 		
facilities new items	Questions O	Time Limit 60	<u>Date Created</u> 5/16/2005		X
Grad Req Figs	0	60	5/17/2005	3	X
Grad Requirements	8	60	5/17/2005	3	X
facilities new items	14	60	5/19/2005	3	X
1 send back	3	60	5/20/2005	3	X
Account Clerk	163	60	5/23/2005	3	X
Account Clerk	3	60	5/23/2005	3	X
2-Way Radio	3	60	5/23/2005	3	X
administrative secretary V2	150	60	5/24/2005	3	X
Instructional Aide Test 2	110	60	5/24/2005	3	X

OTHER SELECTION MATERIALS and DOCUMENTS

Resource Library

Select a category to access resources. Click on category to expand selection. Click again to collapse it.

MEMBERSHIP DOCUMENTS

SAMPLE TESTS (NOT TO BE USED AS PRACTICE TESTS)

SUPPLEMENTAL APPLICATION FORMS

INTERVIEW DESIGN INSTRUCTIONS AND PANEL GUIDES

INTERVIEWS

WRITING EXERCISES

PERFORMANCE EXERCISES

INSTRUCTIONAL AIDE OBSERVATION

TESTING DOCUMENTS

TUTORIALS

INTERVIEWS

ACCOUNTING & BUSINESS

ANIMAL CARE

APPOINTED/ELECTED POSITIONS

<u>ATHLETIC</u>

ATTENDANCE

<u>AUTOMOTIVE</u>

BENEFITS

INTERVIEWS

AVAILABLE

CERTIFICATED

CHILD CARE

CLERICAL

COMMUNITY WORKER

CUSTODIAN

DRAMATIC ARTS & MUSIC

FACILITIES

FOOD SERVICE

GROUNDS

GUIDANCE & STUDENT SERVICES

HEALTH

HUMAN RESOURCES

INFO TECH

INSTRUCTIONAL AIDE

INTERPRETER & TRANSLATOR

LEGAL

LIBRARY MEDIA

MAIL ROOM

MAINTENANCE

MANAGEMENT

PRINT SHOP

PROGRAMS & PROJECTS

PUBLIC INFO

PURCHASING

RESEARCH

SECRETARY 1 1 2

SECURITY

STUDENT ASSISTANCE

SUPERVISION

TELECOMMUNICATION

TRANSPORTATION

WAREHOUSE

Drop Down Menus Allow Access to Word Documents and Interview Questions

<u>INTERVIEWS</u>

ACCOUNTING & BUSINESS

Accounting Supervision Management

Accounting Tech CCD

Accounting Technician

ASB Clerk

Asst. Supt Business Services

Auditor

Budget

Budget Technician

Business Services

Chief Financial Official

Contracts Administrator

Customer Service -SIT

Financial & Research Data Analyst

Grant Writer

Payroll

Position Control Analyst

CUSTOMIZED INTERVIEWS

INSTRUCTIONS ON HOW TO CUSTOMIZE AN INTERVIEW

■ If you need to customize a sample interview in the files on this site, open a blank Word document. Open the CATS interview(s) that you feel are the most closely related to your position. Copy and paste the appropriate questions into the blank document. Edit the items in the blank document to make them job-related to your position. Re-title the interview with your job title and you have a customized interview.

Sample Interview Question From CATS:

Clerk

Describe for us your word processing experience. Which software programs are you proficient using?

Interview question in new Word document after copying, pasting and editing (copied area in RED and edited area in *italics*).

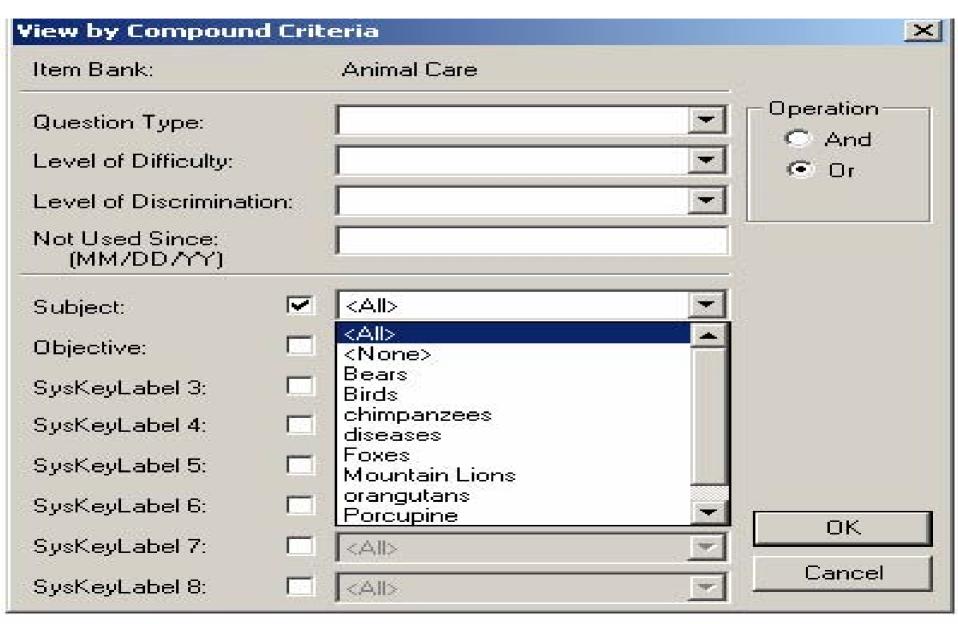
<u>Clerk II</u>

Describe for us your word processing experience. Does this include experience in Word, Excel and Access?

UNEXPECTED PROBLEMS

- Transfer from previous item bank to CATS was not smooth....many items changed formsspaces added, font changes, unreadable text. Majority needed editing.
- Printing cut-off pages and figures.
- Had to hand input packets of test items which were developed for different classifications. They couldn't be combined as they had in the past in Word and emailed to customers.
- Lost keywords from old system and the ability to search by them, therefore a lot of organizational ability was lost too.

PREVIOUS WINDOWS SEARCH BY KEYWORD



MORE PROBLEMS

- Graphics were gone and they had to be re-inputted. A compatible program to handle graphic input was needed. Limited characters (exponents, accent marks). Need to use SnagIt software to capture graphics.
- Couldn't drag and drop items like in Windows based programs. To reorder items we had to rebuild the packets.
- Timed-out during test building, slowdown of opening large files.
- Membership data could not be transferred from Access data base. Had to rely on customers to register to complete customer information.

GRAPHICS DIDN'T TRANSFER

- 1. A sprinkler system is to be installed on all four sides of the planter below. How many feet of pipe will be needed? d\qc PLANTER {\object\objec
 - **a)** 76
 - **b)** 128
 - **c)** 152
 - d) 768

PROBLEMS WITH FORMATTING DURING PRINT STAGE OF TEST MATERIALS WINDOWS TO HTML

VIETNAMESE VOCABULARY WORDS LIST

SNAG-IT

Use the list of words below to answer questions about Vietnamese vocabulary.

1 Boán

2. Boán traêm

Hai môôi

Hai môôi ba

Hai traêm

6. Hoàng

7 Moät

B. Moät tvů

Möögi moät

10 Mpät traêm

11. Naâu

12. Ñen

13. Thaùng ba

14. Thaùng chín

15. Thaùng gieâng

16. Thaùng möôgi

17 Thôù bai

18. Thoù baûy

19 Thóù naêm

20. Thòù saúu

21. Thoù tö

22. Tím

23. Vaøng

24. Xanh laù caây

DIRECT TRANSFER

 Coloque las oraciones en orden l\'f3gico para formar un p\'e1rrafo.

d\nowidct|par\fi-1440\li1440\qj\tab 1. Existen varias razones por las cuales me gusta tomar mis vacaciones en California.

d\nowidctlpar\fi-720\li1440\qj 2.\tab Probablemente San Francisco es la ciudad m\'e1s divertida y bella de los Estados Unidos.

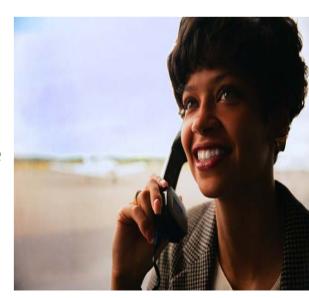
3.\tab Primeramente, Yosemite tiene uno de los paisajes m\'e1s hermosos de todos los parques nacionales.

4.\tab Finalmente, me da gusto saber que nuestras vacaciones de verano no se arruinar\'e1n por la lluvia.

CUSTOMER INPUT

- First few months:
 - Problems with saving material, computer displays, etc. which have been handled.
 - □ Fear of new system and more independence in test construction.
- After improvements:
 - Now they are realizing that they can get to their test materials quicker, at any location, and without less reliance on our office, and without additional passwords, etc.





POTENTIAL NEW FEATURES

- Faster server.
- Linking Knowledge, Skills and Ability library to interview questions and job description developer.
- Job Analysis Questionnaire would help less experienced HR personnel develop job descriptions, performance evaluations and test materials.



EXAMPLE of KSA CHECKLIST:

- □ Understand and follow oral and written instructions.
- □ Perform simple and repetitive tasks.
- Maintain work pace appropriate to given work load.
- □ Perform complex or varied tasks.
- □ Relate to other people beyond giving and receiving instructions.
- □ Effectively influence people on a consistent basis.
- Make generalizations, evaluations or decisions without immediate supervision.
- Accept and carry out responsibility for direction, control, and planning.



INTERVIEW ITEM BANK

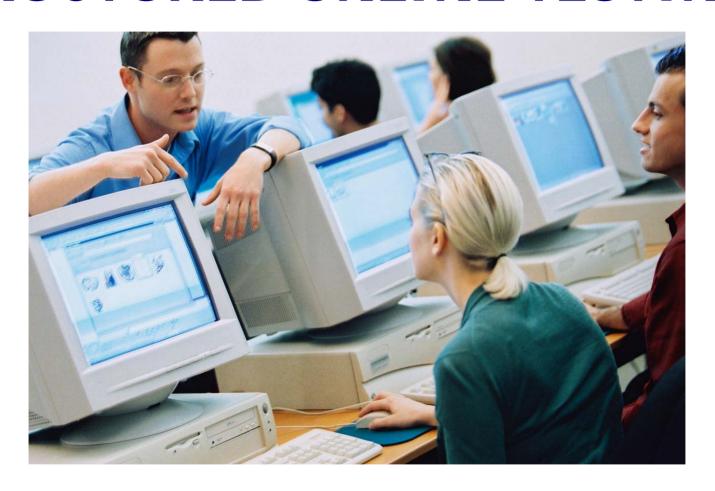
- We are developing a bank of interview questions by KSAs. Currently they are organized by job title/classification.
- Customers will have a choice of standard questions to choose from and then edit to customize them.



VARIOUS WAYS TO ASK ABOUT EXPERIENCE

- Describe the training and experience you have had which you feel qualifies you for this position.
- Describe your background and experience which would qualify you for this position.
- Tell us about any special skills you might have that you see would be helpful in working with students.
- Where and how did you receive your experience?
- Describe for us your work history as it relates to this position.
- Describe the size and type of projects you have completed that relate to this position.
- Elaborate on any previous work or volunteer experience as it pertains to this position.
- Please describe for us your experience as it relates to this position.
- In regard to your past work experience, what do you believe are your strengths in relation to this position?

PROCTORED ONLINE TESTING



PRACTICE TESTS ONLINE

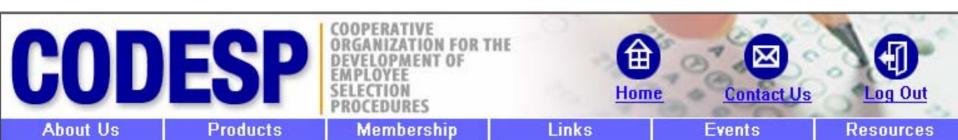
SUGGESTIONS

- •Always allow enough downtime to Beta test the program with a variety of clients.
- •Be prepared to review every item and graphic that is converted to the new system.
- •Make sure the software designers understand what your final product needs to look like.
- •Build in flexibility to the program so that you can get into the customer screens and assist them in correcting problems that may occur while they are learning the system.
- Be understanding and patient.



•Although we were delayed and frustrated at times by the conversion from a Windows based item bank to a web based system we feel that that this conversion will help us expand and streamline our services to our customers in the future.

www.codesp.com





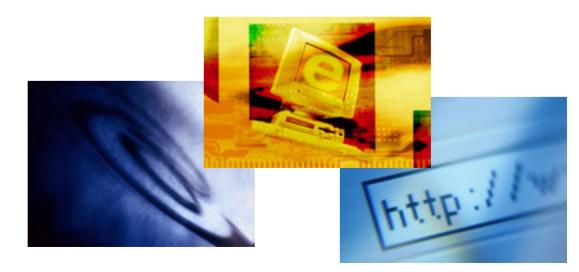
THE TECHNICAL SIDE OF THE STORY

Mark Ashley
Regional Technology Center
Santa Clara County Office Of
Education



Development Overview

- CODESP Requirements
- CODESP Client's Requirements
- Application Development Approach
- Challenges, Issues, Lessons Learned
- Future Plans
- Q&A



Meeting CODESP Requirements

- Web Based Technology
- Re-engineer Business Process
- Paperless Workflow
- Ease Of Use
- Secure



Meeting CODESP Client's Requirements

- Ability to request test materials online.
- Ability to retrieve test materials.
- Ability to reorganize items in tests.
- Ability to print/download tests in a variety of formats.

Application Development

- Develop Website and Web Portal
 - □ Develop Membership Component
 - ■Develop Workshop Component
 - Develop News Component
 - ■Develop Newsletter Component

Application Development

- Develop CATS Application
 - Membership Management
 - User Management
 - CATS request processing
 - □ Subject Matter Templates
 - □ Subject Matter Item Categories
 - □ Subject Matter Item Maintenance
 - □ Subject Matter Image Management
 - □ Scantron Data / Test scoring

Challenges - Issues - Lessons learned

- Windows Applications Complex Solutions can be developed - Web Applications less sophisticated in functionality.
- HTML and style sheets VS WSIWYG In Windows Applications.
- Printing! What A Challenge!
- Scantron Data / Forms.
- Different OS platforms and Web Browsers.
- Technology policies in school districts vary.
- Different skill levels between users.

Future Plans

- Online Proctored Testing
 - □ Tests generated from CATS and test administered online.
- Advanced Item Bank Management.
 - New features for instruction tests and image management.
- Online Practice Tests
 - Online assessment tests related to job descriptions.
- Online Job Descriptions
 - □ Job description bank.

QUESTIONS?