
Research Results for the ADL Registry Version Control System (VCS) Requirements Gathering Questionnaire

Version 3.0

NORTHROP GRUMMAN

DEFINING THE FUTURE

Northrop Grumman Technical Services
Training and Simulation Group
12150 Monument Drive, Suite 800
Fairfax, VA 22033
<http://www.ts.northropgrumman.com>

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Executive Summary

Under the Joint Advanced Distributed Learning Co-Laboratory (JADL) prototype program, the Northrop Grumman team at the Joint Forces Staff College will produce a web-based tracking system that notifies ADL Registry (ADL-R) users of changes to registered content. Prior to designing this version control system (VCS)/notification functionality, an extensive analysis was conducted to get user input on current versioning best practices and user requirements for the new system. As part of this analysis, participants completed an online requirements gathering questionnaire.

Data retrieved from the study is provided here, including details on methods various organizations are using to update, version, and maintain content, as well as preferential enhancements to the ADL Registry. Although the paper provides detailed user responses and summarizes the results to each question individually, the key findings are indicated below.

- The current registration process is perceived as too complicated; it should be simplified to promote widespread use throughout the ADL community.
- Most organizations use a multi-digit numbering system for versioning content and many use a content management system to manage objects over the content lifecycle.
- There is some confusion within the community on what constitutes a “revision” versus a new “version”. In general, revisions should represent minor fixes, whereby versions denote significant material updates.
- Although the frequency that organizations change content varies considerably, organizations will need to maintain metadata records in the ADL-R over the entire content lifecycle.
- Approximately a fourth of study participants reporting having registered content in the ADL-R. In reality however, this number is inflated unless contributions to the practice registry are counted. Sharing content amongst the DoD Components is relatively rare. As the user base grows, so will the need for a VCS.
- The concept of a version control system is generally supported; most participants are likely to use a system that monitors changes to registered content and notifies its users when relevant changes are discovered. However, this *VCS must be integrated with the ADL-R portal and not a separate website*.
- Most participants are interested in using an email change notification system that can be customized to send scheduled emails on registered content updates.
- About half of participants surveyed are willing to login to the Registry so they can manage their user preferences (subscribe to alerts, flag relevant metadata records, etc.). To do so, session management functionality will need to be added to the ADL-R.
- Although RSS feeds were the least popular change notification feature, almost half of participants answered that they were likely to use or would definitely use them (if subscription based).
- The majority of participants deemed other related features important: documentation (including frequently asked questions), version history details, check for updates feature, and genealogy. Almost half also consider email alerts, communication features, and user ratings/comments to be important Registry enhancements.
- Participants outlined numerous systems, policies and procedures used to maintain content, as well as made several valid suggestions that should be considered by the Registry development team. Much of the input received will be incorporated into the supporting design documentation, as well as the *Best Practices for Updating Registered Content* (now available online at http://blackboard.jfsc.ndu.edu/docs/research_papers/ADL-R_Best_Practices.rtf).

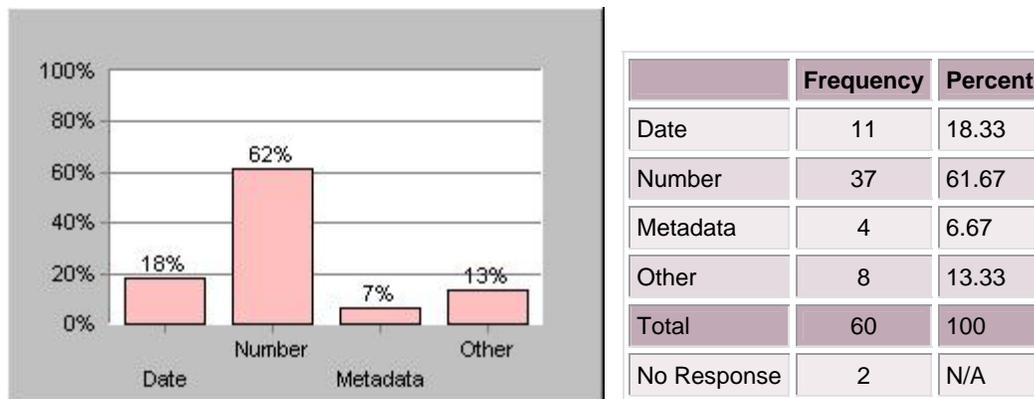
Introduction

Since sending an email solicitation to a targeted audience of approximately 600 individuals within the DOD distance education and training community, we have received 62 responses to our questionnaire. Participants included both contractors and government personnel with ties to the ADL community.

In this report, questions off the requirements gathering questionnaire are **bolded**, while participant responses are *italicized*. Each question was analyzed individually and a summary for each is provided below participant feedback. Additionally, participant data was removed to ensure anonymity.

Question 1

Which method does your organization primarily use to determine whether content has been updated?



Other comments from participants:

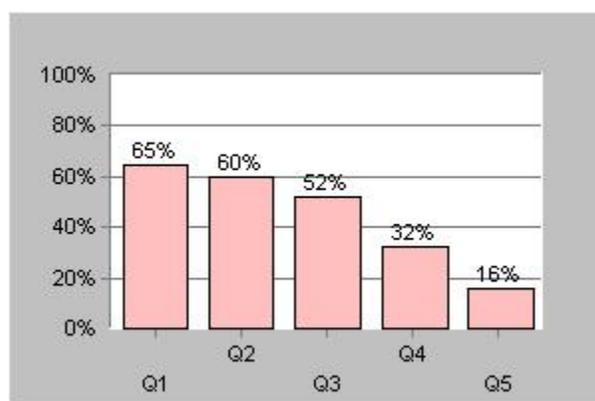
- *We post new content to the repository and annotate as "new" with a date and version*
- *We use version and revision numbers for everything.*
- *No system in place at this time - I'd assume date and version changes would constitute updated content.*
- *We deal with Government Furnished Information received at kick-off and we use the date, version number and revision number, if available. Sometimes we discover that the proponent was unaware that the GFI was updated and we discover it either through Internet searches in which the dates are more recent, or through the knowledge of a subject matter expert. For courseware we produce, we maintain currency of the version by date.*
- *Our organization assigns a ContentID when a course is first introduced to CMAD. Any version within this new "Content" is assigned a VersionID. When a version of a content is finalized and deemed to be searchable by the public, the owner of the content aka Content Sponsor may request a change request. This change request will copy the previous version, but give it a new VersionID. For example, if a Content called "Fix Cars" enters CMAD for the first time. It will be assigned a new ContentID, and a VersionID for version "1.0". Let's say there are grammatical error, a Content Sponsor will request a change request which will create a new VersionID with a new version of "1.1", but still have the same ContentID. Both versions are available to be searched. Content Sponsors have the option of disabling the visibility of the content. When the new version of the content has been validated and ingested into CMAD, the Cybrarian will "finalize" it, which will automatically send a new registration to ADLR.*
- *Our content is organized by a contract title and maintained in a directory structure under that title. To date, we have not required an update to it. If content under development needs to be modified, we normally modify it in place and ultimately overwrite the old content. In the future, when updates need to be made to existing content, the title will change and a new directory structure will be created for it.*
- *Up to the course owner, not the LMS deliverer.*
- *We create our own content so keeping track of updates is done by the developers.*
- *New course name, course number*
- *Resident school uses date (for instance, AY 08) and we may move to that method.*

- We actually use a combination of tracking metadata, version numbers, file names, and Change Log. The change log details the why & how of each change.
- Currently we are beginning to use Blackboard as our LMS. We in the early phases of building process and policies to include what you are asking about
- In my work with the registry, determining if content has been updated will not be important.
- Don't know.
- Tracked via storage system. Existing 'repositories' examined before development
- New version number on CD (primary means of distribution) and in the metadata. The version is the same throughout the metadata for Course - SCO Aggregations - and SCO's

Summary: A majority of respondents (62%) indicated that they use a numbering system to determine whether content has been updated. Date changes were the second most popular method as reported by 18% users, and metadata was only used by 7%. Surprisingly, 13% used other methods ranging from having no system in place to complex systems that incorporate a combination of those mentioned. A few participants also remarked on how their organizations have established lifecycle change management techniques typical to software configuration management procedures. These systems may integrate formal change requests, logs of change data, and searchable repositories.

Question 2

In your organization, what constitutes a revision of online learning content (ex/revision 1.2)?



Q1. Minor updates that do not change the intent or instructional value of content (such as typo fixes)

Q2. Changes to the style sheets or graphical user interface (GUI) (affecting look and feel only)

Q3. SCORM changes (such as changes made to the content organization or package metadata)

Q4. Significant updates that change the intent or instructional value (such as procedural changes)

Q5. Other, please explain

Other comments from participants:

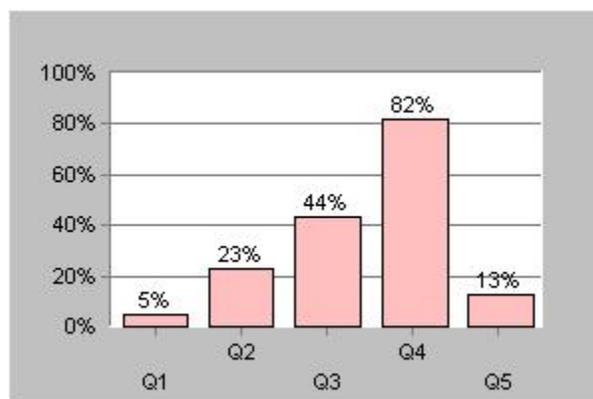
- Changes to the content (lesson) from subject matter experts, instructors.
- Updates can be triggered by a number of things. Minor updates are considered changes while major updates are revision. CNATT usually waits until we have a number of minor changes before updating unless it is a safety issue. However, at one time or other, all of these have applied.
- Most of our revisions are based on changes in content.
- We don't yet use the ADL Registry, so I'm answering based on what I think our usage will be. I think that any of the above could constitute a new revision. The revision policies used in software releases generally reserve major revision numbers for new functionality, while minor revisions are for bug fixes or minor enhancements. I think a similar policy could be applied to online courseware.

- 1. Adds or Deletes that do not change context. 2. Reformats
- We make minor changes / updates (for example, deleting a reading) within a version (Edition 16) without changing the version number.
- Version numbers are tied to hardware systems numbers; we don't update the version number of the courseware unless it corresponds to an update to the target system. If we have to release a courseware delivery that is not tied to a change in the system, it is called a patch (and we try to avoid these as much as possible).
- Also included at that level are minor administrative changes. Changes to style and gui would be minor only. SCORM changes would be minor. Usually 10% or less of the course changed, can be up to 30% but that is rate. Usually changes from 10 to 20% would be spread over several .x changes.
- Minor changes are noted as 1.01, 1.02, etc. Major updates are noted as 1.1, 1.2, etc.
- the version numbering system is three leveled... 1.1.1 so that minor revisions can be indicated as well
- Over 20% change in the content
- In my work with the registry, determining if content has been updated will not be important.
- Don't know.
- NA - revision may be repurpose. All changes are considered maintenance (otherwise the product is considered a new product)
- Revisions are used in the development process but are not reflected in the final delivered product.
- We change the revision number if any change is made to a delivered product.
- Changes in version numbering are also applied even if they are small changes, but if there are any design elements that have changed. Corrected typos will not result in new version numbers, but a changed word would.

Summary: Questions two and three were aimed to determine how the target audience perceives what types of changes to content constitutes a "revision" versus a new "version". As anticipated, revisions are more likely to represent minor updates such as typo fixes, whereby versions more often denote significant updates that change the intent or instructional value. Changes to the style sheets, graphical user interface (GUI), metadata or SCORM package, were also judged to be revisions by the majority of those who responded. With this in mind, it makes more sense that change notifications are used to push data about version updates versus simple revisions.

Question 3

In your organization, what constitutes a new version of online learning content (ex/ version 2.0)?



Q1. Minor updates that do not change the intent or instructional value of the content (such as typo fixes)

Q3. SCORM changes (such as changes made to the content organization or package metadata)

Q5. Other, please explain

Q2. Changes to the style sheets or graphical user interface (GUI) (affecting look and feel only)

Q4. Significant updates that may change the intent or instructional value (such as procedural changes)

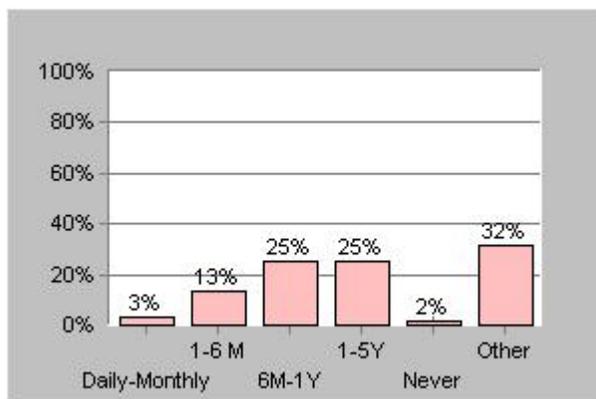
Other comments from participants:

- Significant updates would be a separate item
- Changes to the content (lesson) from subject matter experts, instructors.
- A new version would be a new course with new content and new structure. This is fairly rare.
- TBD
- 1. Adds or Deletes that change the context 2. New Author/Instructor and Course Title
- New versions (our next version will be the 17th Edition) will mirror the AY 08 resident curriculum (a requirement of the OPMEP and AF instructions).
- We only update the version when the target system also changes version.
- This also involves larger % changes to the course.
- We associate "version" more with the look, feel, and organization of the presentation, although the terms "version" and "revision" are often used interchangeably.
- If generated with a new version of our authoring tool, we typically renumber the content so that it is easy to see what it came from. Also, our software generates the SCORM packages, so updates in the version of SCORM would most likely coincide with an update in our software.
- In my work with the registry, determining if new versions are available will not be important.
- Don't know.
- Measure of the change is reflected in the amount the version changes. <5% = .01 5% to 25% = .10 >25% = 1.00 with specific modification - version change rules applied.

Summary: As explained above and indicated by 82% of study participants, a new version should designate significant updates to the content. Additionally, almost half (44%) change the "version" when changes are made to the SCORM package, and almost a fourth (23%) change versions with updates to the style sheets or GUI. Other comments indicated that versions were changed in relation to the academic year the curriculum is used, or that a specific measure of the change is reflected in the version number used (this is an interesting approach that might take some of the guesswork out when determining the extent of changes).

Question 4

On average, how often does your organization update its online learning content (such as a typical SCORM content package) after its initial release?



	Frequency	Percent
Daily-Monthly	2	3.33
1-6 M	8	13.33
6M-1Y	15	25.00
1-5Y	15	25.00
Never	1	1.67
Other	19	31.67
Total	60	100
No Response	2	N/A

Other comments from participants:

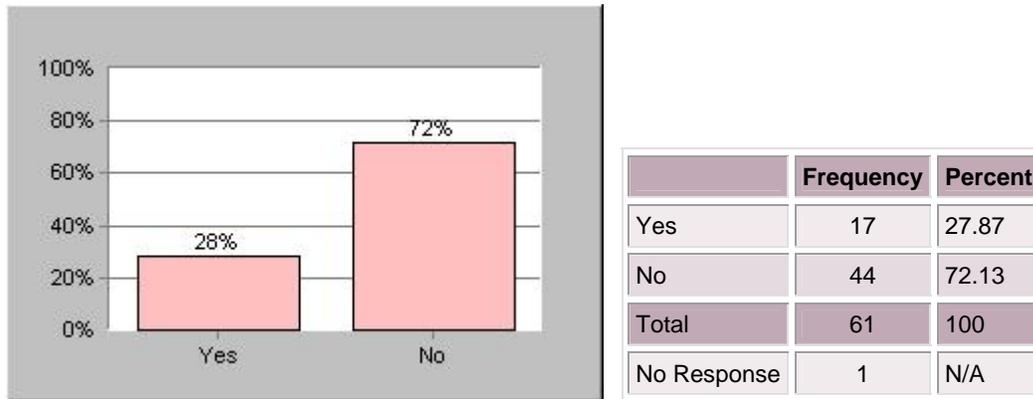
- It depends on availability of funding for the maintenance of the course
- We would not package a whole course (new every 6-12 months) as SCORM because we make changes to a course as it is being presented.

- Generally military clients tend to update every 1-3 years, depending on the volatility of the content.
- We are new to this, just starting, however it will change when lesson content changes.
- one to three years (so far), goal is an update at one year if not driven sooner
- We only make changes to content that has been "delivered" if a separate maintenance contract is awarded. If that happens, content will be updated after receiving comments from users.
- The decision is related to other content life-cycle issues which are identified. The update cycle is determined by factors such as expected mutability of content over the next xx years.
- Parallel organization will do this task.
- All content, online or not, is reviewed on an annual basis. Updates are determined at that time. CNATT has very clear standard operating procedures for both library management and courseware updates.
- We update our content as required by doctrinal changes and stakeholder request.
- TBD
- We are currently working on new notification processes through CMAD that will request for an annual review of content by the government sponsor.
- Unfortunately, it depends upon the instructors and their desires. There is no policy (or more importantly, money) to check content and modify/update if required outside of instructors updating their classes.
- We do not currently use online learning content.
- It really depends on the specific course. Our Biostat COurses don't chg that much, except to add new relevant examples.
- Minor revisions as needed, new versions every 1-2 years.
- .x changes monthly to quarterly. X.0 Changes 1-3 Years
- As required.
- As requested by the Government.
- Minor changes tend to occur within six months of release based on feedback from the field. After this period, content typically remains stable for 24 months or so.
- Our educational users update based on the change in school terms. Professional users seem to constantly update the content, especially if our software has been given to their training department to self-manage. Also in that case, they use whatever numbering/versioning system is meaningful to them... our software does not force one on them.
- Required to conduct review every two years
- My organization does not produce SCORM (or other) content.
- Depends on the stability of the content. Each course has its own review and revision cycle.
- Program has yet to use SCORM
- Depends on the contract requirements. Some customers do not want revisions and it is a one-time delivery. Other customers want updates on a scheduled basis.
- Updates are not regularly scheduled but preformed on an as needed basis.
- No standard for update. My organization is converting instructor led material into web-based material.
- Dependent upon the nature of the content - whether static or dynamic. Dynamic content will usually rest up to three months before LCM effort begins.
- As we are a developer, modifications to learning content are dependent on the customer's requirements and available funding.

Summary: The frequency organizations make changes may be an important factor to consider when determining whether organizations will push changes to their Registry transaction files and to the need of a version notification system. Unfortunately, the results are scattered across the board and the most popular answer was "Other" among 32% of study participants. As one person indicated, "Generally military clients tend to update every 1-3 years, depending on the volatility of the content". From the comments gathered, it depends on many factors in addition to whether or not the content data itself is stable, including whether the content maintenance is contracted and funded, whether manning or subject matter expertise is supplied, when new doctrine is implemented, and how long the content will be used.

Question 5

Is any of your organization's online learning content currently registered in the ADL-Registry?



Summary: Although 28% of the study participants replied that their organization has content registered in the ADL-Registry, in reality, only a few organizations have actually registered their content metadata with the operational ADL-R. Therefore it goes to reason that this number is inflated, and conceivably, that study participants counted their organizations' contributions to the practice registry as well. Based on these usage statistics and available data within the operational ADL-Registry, the ADL-R is still in its infancy and not being used by most DoD DL institutions. Ideally as the numbers of users rise and content is added to the Registry, sharing reusable objects will become more prevalent and the need for a version control notification system will rise.

Question 6

Briefly explain the process your organization takes to update its online learning content and how revisions or version changes are handled.

- *N/A We receive updated content from a variety of Army proponents and act as a central repository for the system.*
- *We use forms. We basically decide on what constitutes a version change and what needs to go in the next version. Then we fill out the appropriate documentation and assign a new version number. We are heavy into process management.*
- *Online Content revisions or version changes are handled by one of 4 people in the Instructional Support Group. All changes are done on a development server before being uploaded to the web server. Version changes are verified by SME and changes made before content is made available to the students.*
- *no system currently in place, in development*
- *We only update when contracted to do so by a client. However, we did recently design and deliver internal courseware for sector-wide distribution on Ethics, which was an update of the previous online Ethics program. The NGC HR department wanted a more interactive online training opportunity that could also be used by a facilitator, so the change was precipitated by the HR department's needs assessment that the course needed to be more motivating and interesting to the user.*
- *After a version of content has been validated and ingested into CMAD, a Cybrarian will change the status of the version of the content to "Final". At this point, an XML doc is created to capture all of the metadata for every sco within the content. This XML doc is sent via HTTP Post to the RIM-LITE portal and waits for a response that includes the status of the submission and the TransactionID. We have seen many different types of responses from RIM-LITE. I will attempt to explain the most common ones and how we handle each one of them. 1) Action: insert - Response is successful and a TransactionID is transmitted back to us immediately. We then take this TransactionID, send another HTTP Post and grab the Transaction Status. If the status contains a proper record, we will parse that element and look for the status of the six ADLR processes (requestedOperation, registryOperation, indexingOperation, contentObjectHandleOperation, metadataInstanceHandleOperation, CCOMHandleOperation). If all processes were successful, we assume that the content has been registered successfully. We will then take the accompanying*

MetadataInstanceID and *ContentObjectID* and save to our database for future references. Depending on the type of action (insert, delete, activate, or deactivate), we may or may not check all of the ADLR processes. 2) Action: insert - Sometimes the RIM-LITE portal needs more time to process our submittal. Therefore, the *TransactionID* will be returned, but not status is exists. If the status is empty, we will capture the *TransactionID*, store the *TransactionID*, our internal *CMAD RecordID*, and the *dateSubmitted* in a separate table. This table is used to store pending transactions from ADLR. At certain points within the *CMAD* system, *CMAD* will start the processing of checking for any pending transactions from ADLR. Using the *transactionID* that is stored in the table, we do a "gettransactionstatus". If no status is provided, we save the date of the last time it was checked and try again later. If a status is returned, we updated the *CMAD* database as usually and remove the record from "pending transactions" status. Actually this process is the same for all actions: insert, delete, update, activate, deactivate. 3) Action: delete - Upon successfully deletion, we will remove the *MetadataInstanceID* and *ContentObjectID* from our system for that particular sco. We will store the *TransactionID* that committed the delete process for reference. 4) Action: deactivate/activate - All of our *SCO* records within *CMAD* have an *ADLR* activation property. If we deactivate in *ADLR*, then we set it to 0. If the sco is activate in *ADLR*, we set it to 1. We keep track of the activity level of the *SCOs* because there is not a way for us to query *ADLR* for deactivated content. Only activated content appears I our search for our content. We have a master page for Administrators to see ALL content that has been loaded to *ADLR* whether it is active or deactivated. We first to a search for active content from *ADLR* and match it up with our records in *CMAD*. We then combine the search with a second search of our down system for deactivated content. If a content is activated on *ADLR*, we show a deactivate button for the Admin to use. If the content is deactivated, we show an activate button for the Admin to use. 5) *ADLR* & *CMAD* Syncing Process: Due to the current high level of communication volatility, I have built a system to sync up our records. If we are missing *MetadataInstanceID*, or *TransactionID*, we can do a full search on *ADLR* for all content that belongs to Navy ILE. The *ContentObjectID* that is stored by *ADLR* (Example: 4444.13/R2827) actually contains the unique *CMAD RecordID* for that particular sco. We can parse the *RecordID* (Example: 2827) and use it to locate the siblings and the parent. We can then update our tables with the correct *MetadataInstanceID* and *ContentObjectID*.

- No established process, we have just begun DE development
- We are new to this: will update through a tracking "TCR" from curriculum.
- Annual review of lessons is scheduled throughout the year. Lesson developer reviews content and doctrine and makes changes. Changes are reviewed by Curriculum Developers before changes are implemented. Updates on changes are provided to instructors. Out of cycle changes are made on an as needed basis.
- The current version is in the LMS as the active content. A copy of this version (current baseline) if kept offline and in our LOR (if this team chooses). The offline version is updated by a content developer. If the content developer is metadata-aware, the lifecycle version is updated (major or minor release). Once QA is complete, the new version is installed as the active content in the LMS, the new date indicating a new version. Again, if metadata-aware, the new metadata will also be updated in the LMS and the LOR (if used). A proper version control system is used by a few teams.
- Content changes are required when related doctrine or best practices change, or when feedback from SMEs or content accessers indicate. Periodic reviews are also conducted. Identified changes are made either at the next scheduled revision or version change or in critical cases as soon as feasible.
- Program managers and e-learning officer identify changes according to the pre-determined cycle or based on help-desk data or other sources indicating a change in policy or procedure is forthcoming. A scope is developed to identify the expected LOE. A plan, prioritization, and resource allocation are developed to support the change. From then on the effort follows the plan and conforms to the CG Advanced Distributed Learning SOP, which details the process, evaluations, and approvals to be obtained for any e-learning product.
- This task not completed at this command. USMC Training Education Command, Quantico, VA will do this task.
- Course owner determines when to update computer files
- See details emailed separately. In summary, they submit change requests/proposals annually using a web-based training tools change management system (TTCMS) to track all content updates and supporting data. Once validated and assigned (requires funding for major updates), the changes are completed and new content and course materials are added to Mediatrax with new version numbers. CNATT uses an A0 format for online content (1.0 for legacy, we are in the process of migrating content to online). An alpha change is a major revision. The 0 changes would be a minor revision. Example: CNATT-015-011-002-005-B0 This content would be F/A-18 (015) Airframes (011). The set of content delivered (002). The 5th module in the series (005) and the second version after a major update with no minor updates following.
- Manually update when content changes.
- Our courses are developed/revised on a one year cycle for our distance and residential programs. Different courseware for each program. All developments and updates happen in-house.
- Any revisions to content including content retirement should be coordinated through the ILE Content Management Team. Each revision will require the developer and government sponsor to complete a Content Revision Form. When resubmitting content, the content developer and sponsor should specify that the submission type and whether it is a minor update, major revision, or retirement. This will affect versioning of the content and must be communicated to the ILE Content Management Team.

- *The Course director is responsible for all updates. Any changes are passed to a single educational tech that handles the mechanics*
- *We depend upon CMMI and SDP processes and we are ISO 14000, so we have set practices, processes and procedures to follow.*
- *I am not sure of the technical aspects. As we get inputs from students, resident school and outside sources, we discuss the potential updates, make a decision and the technology folks make the changes we decided on.*
- *We create technical training. If there is an engineering change, the content is revised and given a revision number. If style or format is changed significantly, it receives a revision number. Minor style and typo changes do not receive a revision number and are either incorporated or held until a revision is required.*
- *I think I've already covered the basics of versioning. Unless a update is correlated to a change in the target system, it is considered a defect, and gets a patch number. Nobody wants to be in this situation.*
- *There are several triggers that would start the process of updating content. If the doctrine on which a lesson(s) is based changes (new FM) then at least the reference is updated. The Subject Matter Experts will then review the impact of the FM. There are historical examples, some traditional, some current. The current ones are examined on approximately a six month schedule. We have also been directed by our proponent to do a major update (greater than 30% update).*
- *Updates are provided on an "as needed" basis.*
- *Revisions are passed to all faculty via our Blackboard faculty page, or our MarineNet faculty page.*
- *We work primarily on customer requests.*
- *Our content is turned over to the Government customer. When revisions are requested, we either add new SCORM metadata or revise existing data as needed. The changed data is tested by the Government for content and playability and they make the formal updates on the ADL.*
- *Updates are generally driven by feedback from users, proponent directives, or by changes in the governing publications.*
- *For internal content projects, we maintain maturing InSite Studio design files that are used to generate the content. The design files are versioned as appropriate to represent the state of development. Once the design file is complete and the final packages are produced, we have not typically versioned the internal web files in the package. Changes are always made from the design file and the package reproduced whenever possible. If direct editing of a web file in the package is required, we cannot change the filenames because the automatically generated references in the manifest and learning skin navigators would all be broken.*
- *We do not produce learning content.*
- *Updates are the responsibility of the OPR's. If we are the OPR the SME reviews the content and make the required changes/revisions.*
- *Eval data is reviewed, resource documents are reviewed. Project plan IDed. Changes made. Validated. Reviewed Approved. Documented. Analyzed for refreshure or retraining applicability. Released.*
- *We conduct the ADDIE Model for even updates. Updated are annotated in online tool and tracked through completion. The courseware is then updated based on if it was minor or major content changes for version.*
- *Uploads via Blackboard*
- *Resident course updates are feed in the dL version and published. The dL product is updated to reflect the exact product as the resident.*
- *All MarineNet IMI content is owned by the sponsoring organization--typically the Training and Education Center of Excellence responsible for that content/performance area--and thus it is the sponsor's responsibility to identify needed updates. Most updates are briefed to the annual TECOM Distance Learning Targeting Board and prioritized/vetted up the chain to TECOM CG for execution during that fiscal year; however, an update involving safety or security will be contracted immediately.*
- *Paid contractors. Old material supplied and new material generated*
- *Any minor changes (i.e. typos, grammar errors, etc.) are updated in-house. Any major revisions (i.e. content changes due to new doctrine, equipment, etc.) they are done by contractors.*
- *At the Joint ADL Co-Lab, we are a research organization. We have registered content with the ADL-R practice registry.*
- *Annual review of each product by Subject Matter Expert Review of change documentation compared to existing related content. Feedback from users (Fax, email, snail mail)*
- *Update xml data files or .swf media files on the LMS.*
- *Content updates only - process begins with reviewing task analysis for any changes. Task changes will result in learning objective review. LO changes result in SB review.*
- *Feedback from courseware and simulations are collected from the user community. Customer works with our ISD personnel to validate and verify the efficacy of the courseware. If necessary, our instructional designers will modify the design and/or content based on the needs of the customer. At that time, our development team makes those changes.*

Summary: For those organizations represented that produce and maintain online learning content, there are a variety of customized systems, policies and procedures used to keep content updated. Some of those identified above can be spotlighted as best practices. For instance, it is important for organizations to have a standard change management system in place to ensure content maintenance over its lifecycle so learners receive relevant information. If possible, appoint a Cybrarian and/or Repository Manager to manage version history and change data. Two Cybrarians provided details and documentation on their processes. Some of their recommendations will also be incorporated into the final documentation.

Question 7

Please provide any other suggestions on implementing best practices for content registration.

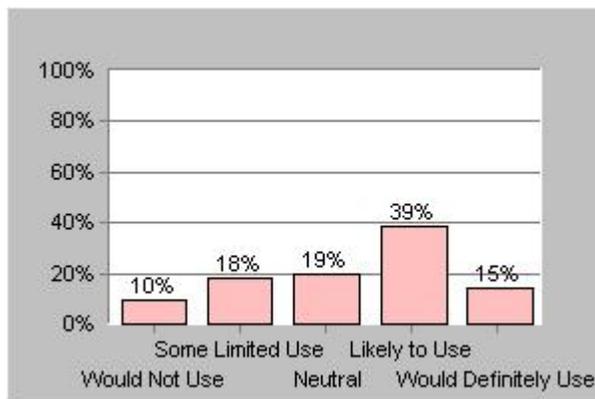
- *Until we have an automated method for registration the current method is impractical*
- *Make it easy for the user to register content.*
- *I believe any repository should be able to logon to ADLR as a content administrator of their own content and view a listing of all the content that has been registered. The list of content should contain various data such as activated/deactivated, date last submitted, version, # of users who viewed it, # of users to who download it and a way for administrators to view comments from other users. Due to the way our content is structured, we cannot register our content in a manner that represents the parent-child/siblings structure. To fix this problem, we designed a process that directs the user to a page that shows the siblings of the content from our website. If the user downloads the content, we present a terms and conditions page for which the user accepts. If the user accepts, we capture the CMAD UserID of the user and the date the content was download. We require all ADLR users who get redirected to CMAD to login. This is how we can capture statistical data on who, how, when, and where are content is being utilized.*
- *Request that a summary of changes be provided with content changes. Not every change need be identified unless it would contribute to understanding.*
- *Being new to ADL, etc., it would be great if there was some type of user's guide to explain the entire process. We are just now getting some level of exposure to it.*
- *We intend to register only content that is in final form (in production)*
- *My concerns lay in making updates to two systems. Once our Mediatrix library has completed the registration. How will ADL be notified since all configuration management is done locally here in mediatrix. Would our library automatically update ADL? (would be wonderful, but not sure that will happen).*
- *Ensure s standard Metadata requirement. Need to ensure Metadata is valid and relevant.*
- *IP rights and copyright licensing solutions similar to creative commons licensing methodologies implemented on social networking sites like ccmixer.org*
- *We are still experimenting with using RIM lite.*
- *Curriculum Review Panel of experienced, high quality Professors. Each Course Director must present and justify their course content, teaching methods, evaluation tools, etc. at least annually.*
- *Get a process that works for the organization, review it, test it and implement it, revise when necessary but document the changes along the way so all are aware of new aspects.*
- *Registration is currently handled by Navy ILE - when they accept the SCOs, they automatically populate the ADL-R repository. This is nice & convenient. Registration should happen automatically and transparently in the delivery process.*
- *Using the Metadata allows you to not effect / affect the file names to make changes, and you can use the meta date to date the displayed screen / page so that the student sees the version number / date. Just as print media (FMs) display the as of date on each page.*
- *An analysis of joint organizations business rules to set a standard taxonomy would be helpful. If you do not have taxonomy for what is needed or how things will be filed organizations will not use it. Especially if that taxonomy in how you are doing things has no correlation to the organization or its daily business practices*
- *We do not currently use any scorm compliant J/PME course materials on our websites.*
- *Are there any plans to include publications cited as references in the instructional content in the course metadata?*
- *Please allow file types such as our module and course design files in InSite Studio. these files represent instructional design through development and are basically a type of package. The design files are shareable/reusable, and a much easier way for someone to update/modify SCORM packages -- especially if they want to adjust the course behavior. Also, please provide a web service interface for authoring applications to conveniently perform "publish" operations and/or search for relevant content to be imported.*

- CCE is just now preparing to enter multiple SCORM conformant items into the ADL Registry--we are not yet in a position to provide guidance.
- provide a help desk/central contact POC. My overarching organization (TRADOC/Army) appears to be slow in establishing registered content. My understanding is that there is too much material?
- A suggestion--A numbering system that codes content by the service branches and joint operations would also make it easier to search for content.
- Implement best practices to be followed by tools - Course ID and Version information from the metadata utilized by LMS's, LCMS's, ADL-R. Drive to have a single registration event and eliminate all other requirements or automatically register from ADL-R (DAVIS/DITIS - Navy CMAD - ADL-R - etc. etc. etc.)
- We have not used the ADL registry and have not been able to find reason to use it as of now. I am hoping at the Implementation fest that I may be able to more fully appreciate the scope of the registry. We have our own LMS and develop our own eLearning courseware and a versioning system would be helpful, I am not sure
- Course version history should be available - granularity down to SB level if necessary
- We need to create awareness among other government entities about the ADL-R and language needs to be added to contracts and SOWs so that the development team is required to both review existing courseware before development and upload new content prior to receiving sign off on the project.
- Content falls into different categories. Given the amount of content that will eventually be registered in the ADL-R, any system to automatically notify users of content/version changes should be: 1) voluntary (i.e., if an org wants to register content one time, and *themselves* handle subsequent version change updates to potential users of that content, they should retain that option 2) limited to content for which version control is essential (the point here is that auto-notification for something like technical manuals makes sense and would be very useful. Auto-notification for all content could eventually inundate users, even in terms of setting up that notification--e.g., wading through thousands of titles that could potentially be flagged). Another way of saying this is that for an auto-notification system to work well, a focused structure and organization of its GUI is essential, and cognizance of the various types of content with their varying levels of "version criticality" is key.

Summary: Although not directly applicable to the version notification system, multiple participants suggested that the current registration process is too complicated; this explains why so few are using the Registry. Those working with the Registry should consider some of the suggestions provided to make it easier for users and promote its use. Relevant advice and supporting documentation received will be addressed in the best practices documentation.

Question 8

How likely would you be to use a system designed to allow ADL-Registry (ADL-R) users to monitor changes to relevant content?

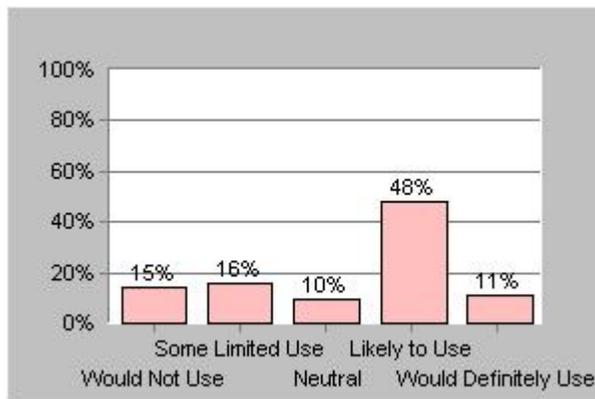


	Frequency	Percent
Would Not Use	6	9.68
Some Limited Use	11	17.74
Neutral	12	19.35
Likely to Use	24	38.71
Would Definitely Use	9	14.52
Total	62	100

Summary: Over half (54%) of participants answered they were likely to use or would definitely use a system that monitors changes to registered content, while only 10% would not use the system at all. This may be optimistic given the current amount of organizations with registered content, but ideally the estimates will be supported as the amount of registered content increases substantially in coming years.

Question 9

Please rate the likelihood you would use the following change notification features to learn about content updates pushed to the ADL-Registry: email change notification based on your individual preferences (immediately, daily, weekly, monthly, etc.).

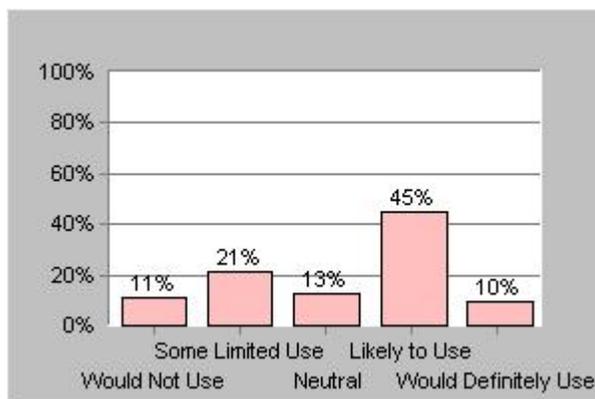


	Frequency	Percent
Would Not Use	9	14.52
Some Limited Use	10	16.13
Neutral	6	9.68
Likely to Use	30	48.39
Would Definitely Use	7	11.29
Total	62	100

Summary: About 60% of participants answered they were likely to use or would definitely use an email change notification system that could be customized to send scheduled emails on registered content updates.

Question 10

Please rate the likelihood you would use the following change notification features to learn about content updates pushed to the ADL-Registry: website listing of your preferences when you login (flagged content, version history, changes, etc.).

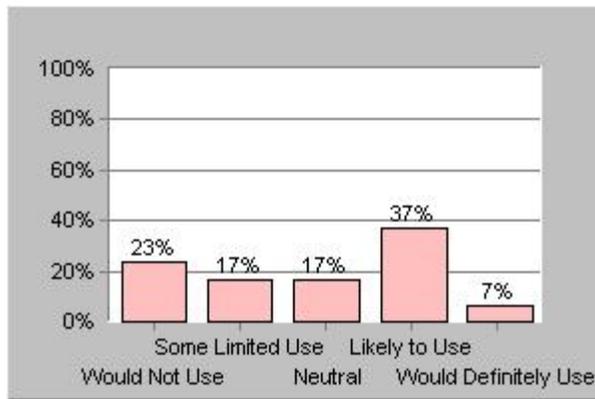


	Frequency	Percent
Would Not Use	7	11.29
Some Limited Use	13	20.97
Neutral	8	12.90
Likely to Use	28	45.16
Would Definitely Use	6	9.68
Total	62	100

Summary: 55% of participants answered that they were likely to use or would definitely use a website listing user preferences upon login. This would require the portal used to add session management functionality that allows users to register for access and manage user data. Ideally once logged in, users would be given the ability to and customize user settings, flag content objects they wish to watch, view historical data on registered content, subscribe to alerts and RSS feeds, etc.

Question 11

Please rate the likelihood you would use the following change notification features to learn about content updates pushed to the ADL-Registry: RSS feeds that list newly registered and updated content.

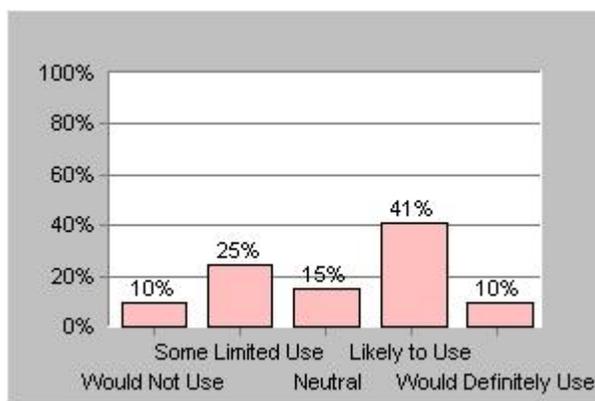


	Frequency	Percent
Would Not Use	14	23.33
Some Limited Use	10	16.67
Neutral	10	16.67
Likely to Use	22	36.67
Would Definitely Use	4	6.67
Total	60	100
No Response	2	N/A

Summary: RSS feeds were the least popular change notification feature. Only 43% of participants answered that they were likely to use or would definitely use RSS feeds. However if the RSS feeds were subscribed to individually, it is still a value-added feature to the Registry VCS.

Question 12

How likely would you be to login to the ADL-Registry Portal to customize your preferences and flag relevant metadata records?

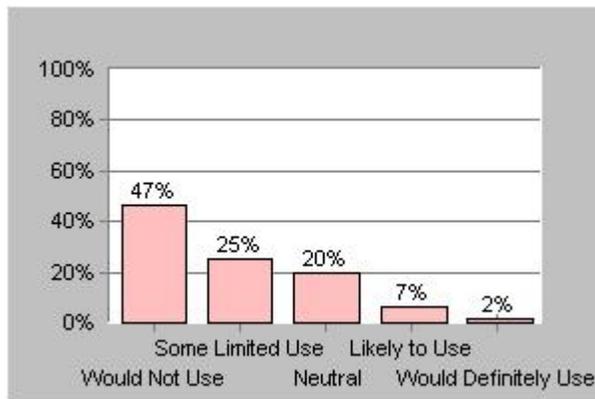


	Frequency	Percent
Would Not Use	6	9.84
Some Limited Use	15	24.59
Neutral	9	14.75
Likely to Use	25	40.98
Would Definitely Use	6	9.84
Total	61	100
No Response	1	N/A

Summary: Approximately half (51%) of participants answered they were likely to or would definitely login to the ADL-Registry Portal to customize preferences and flag relevant metadata records. Additionally, 15% were neutral and 25% answered some limited use. This is especially encouraging given the few organizations that are currently using the registry.

Question 13

How likely would you be to use a version notification system that required you to login to another website that was not integrated into the ADL-Registry Portal?

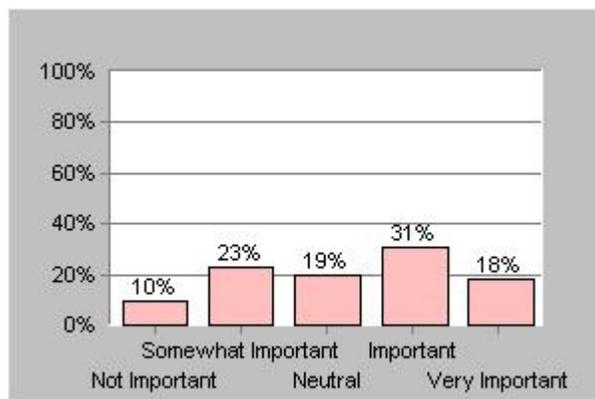


	Frequency	Percent
Would Not Use	28	46.67
Some Limited Use	15	25.00
Neutral	12	20.00
Likely to Use	4	6.67
Would Definitely Use	1	1.67
Total	60	100
No Response	2	N/A

Summary: Not surprisingly, the willingness of participants to use a site outside of the ADL-R portal dropped significantly when compared to the previous question – only 8% would likely use the system. Therefore in order for a version notification system to be successful, it MUST be integrated with the Registry portal.

Question 14

Please rate the importance of the following feature of the ADL-Registry Portal to your organization: "check for updates" search feature that identifies all recently updated metadata.

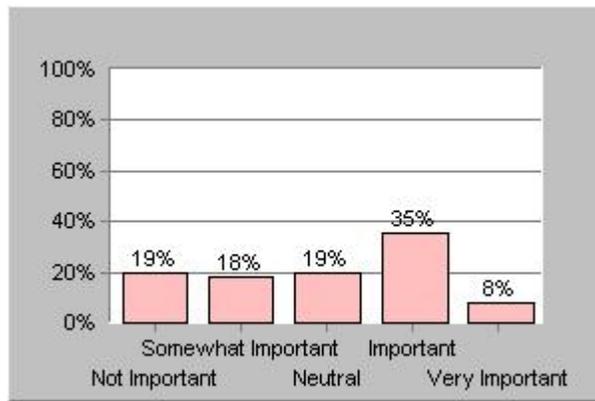


	Frequency	Percent
Not Important	6	9.68
Somewhat Important	14	22.58
Neutral	12	19.35
Important	19	30.65
Very Important	11	17.74
Total	62	100

Summary: Almost half (48%) of study participants said that a “check for updates” search feature was either important or very important. The “check for updates” search feature to identify recently updated metadata records will be especially valid if users are given the ability to select content relevant to their needs, either by keyword, category, content identifiers, etc.

Question 15

Please rate the importance of the following feature of the ADL-Registry Portal to your organization: communication features (such as threaded discussion or messaging among registered users).

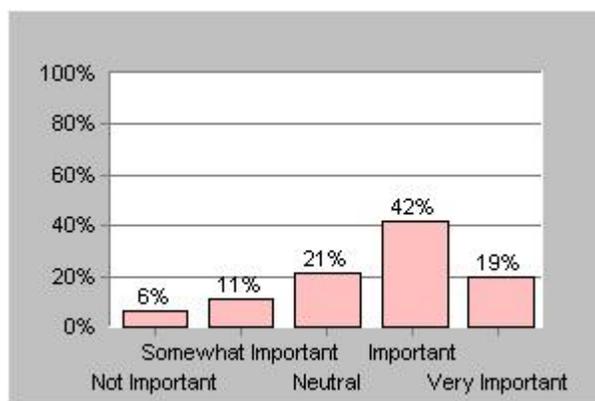


	Frequency	Percent
Not Important	12	19.35
Somewhat Important	11	17.74
Neutral	12	19.35
Important	22	35.48
Very Important	5	8.06
Total	62	100

Summary: In order to provide additional feedback to the Joint ADL Co-Lab in its research and development work, this questionnaire measured additional functionality that could be added to the Registry that are not proposed features of the version control system (VCS) prototype. Here it appears that communication features are judged at approximately neutral importance to participants.

Question 16

Please rate the importance of the following feature of the ADL-Registry Portal to your organization: frequently asked questions (FAQ) and answers section.

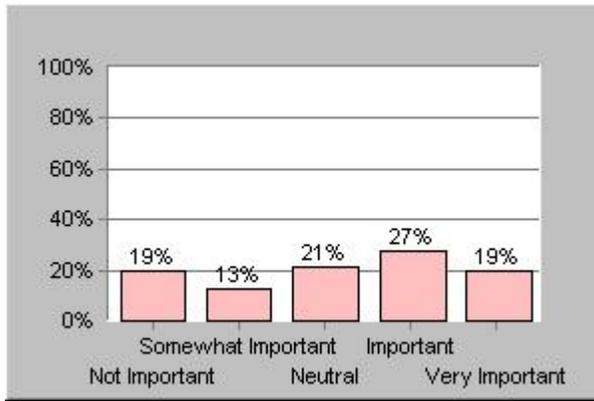


	Frequency	Percent
Not Important	4	6.45
Somewhat Important	7	11.29
Neutral	13	20.97
Important	26	41.94
Very Important	12	19.35
Total	62	100

Summary: Most participants (62%) answered that frequently asked questions and answers are important or very important. Although there are currently some FAQs included the ADL-Registry portal, these should be expanded to include additional questions users provide in regards to version control issues and registering content updates that are discoverable by the version notification system (when it becomes available through the portal).

Question 17

Please rate the importance of the following feature of the ADL-Registry Portal to your organization: **genealogy information (describes supporting parent-child content relationships).**

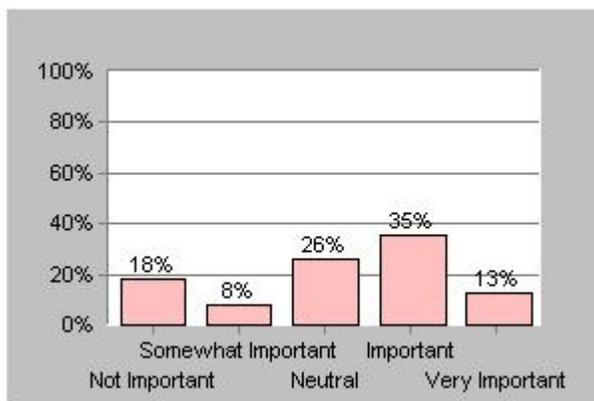


	Frequency	Percent
Not Important	12	19.35
Somewhat Important	8	12.90
Neutral	13	20.97
Important	17	27.42
Very Important	12	19.35
Total	62	100

Summary: Genealogy information (data describing related content) was not ranked as highly as anticipated although the results indicate it is still important for the average participant. Ideally, version history would include data about other content that a particular package originated or was repurposed from that organizations may also need to maintain visibility of changes on.

Question 18

Please rate the importance of the following feature of the ADL-Registry Portal to your organization: **subscription-based updates service via email alerts that identify newly registered content packages.**

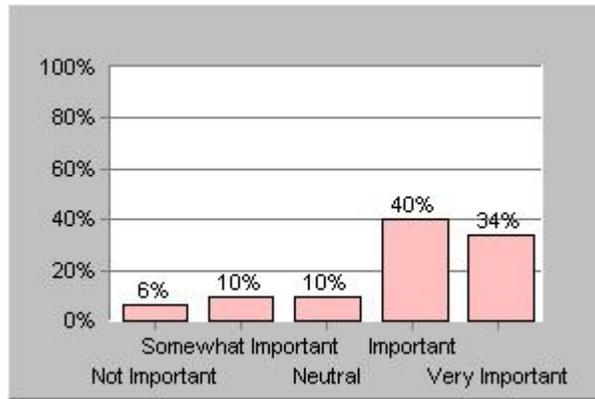


	Frequency	Percent
Not Important	11	17.74
Somewhat Important	5	8.06
Neutral	16	25.81
Important	22	35.48
Very Important	8	12.90
Total	62	100

Summary: Almost half (48%) of participants indicated that subscribing to email alerts is important or very important to their organization. Although the basic alerts functionality is provided in the current Registry, it needs additional enhancements (such as adding user session management) to make it a better system. Details on the proposed design will be provided in the final design documentation.

Question 19

Please rate the importance of the following feature of the ADL-Registry Portal to your organization: supporting documentation (instructions, metadata structure requirements, examples, etc.).

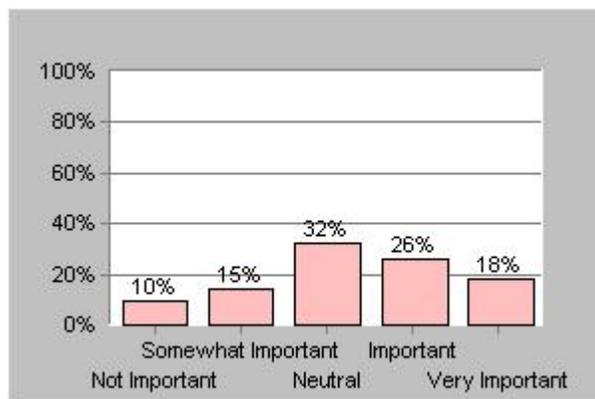


	Frequency	Percent
Not Important	4	6.45
Somewhat Important	6	9.68
Neutral	6	9.68
Important	25	40.32
Very Important	21	33.87
Total	62	100

Summary: As anticipated, proper supporting documentation is important or very important to most (74%) of participants. This was rated the highest out of all the features identified in the questionnaire. The challenge will be to provide instructions, requirements, and examples that meet the needs of the VCS but still allow users to maintain needed flexibility within their own organizations' metadata standards.

Question 20

Please rate the importance of the following feature of the ADL-Registry Portal to your organization: User ratings and comments on registered content (similar to an Amazon or e-Bay rating system).

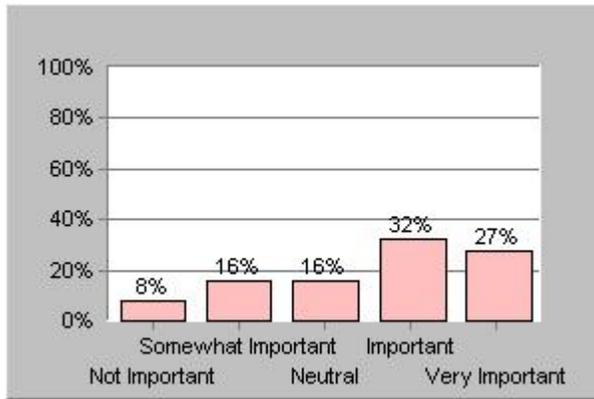


	Frequency	Percent
Not Important	6	9.68
Somewhat Important	9	14.52
Neutral	20	32.26
Important	16	25.81
Very Important	11	17.74
Total	62	100

Summary: 44% of participants found the ability to add user ratings and comments either important or very important, while 32% were neutral. Although this won't be added as part of the version control system prototype, the registry team may want to consider this as a future enhancement to allow users to share with others information that might make the front-end analysis and content selection processes easier.

Question 21

Please rate the importance of the following feature of the ADL-Registry Portal to your organization: Version history details (what types of updates were made in each version).

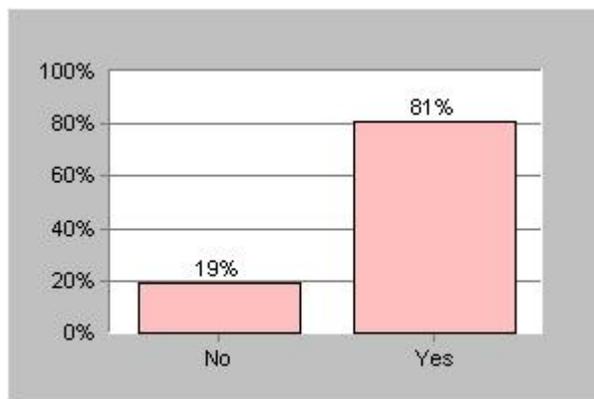


	Frequency	Percent
Not Important	5	8.06
Somewhat Important	10	16.13
Neutral	10	16.13
Important	20	32.26
Very Important	17	27.42
Total	62	100

Summary: Version history details should definitely be part of the Registry according to 60% of participants that found it either important or very important. Although the current transaction LOM supports the ability to add version details, most users are likely to only include information about the version number. The upcoming project documentation will explain how users can and should document version updates, change descriptions, and genealogy information in their transaction files.

Question 22

Would you be willing to review the draft best practices guide for registering content changes?

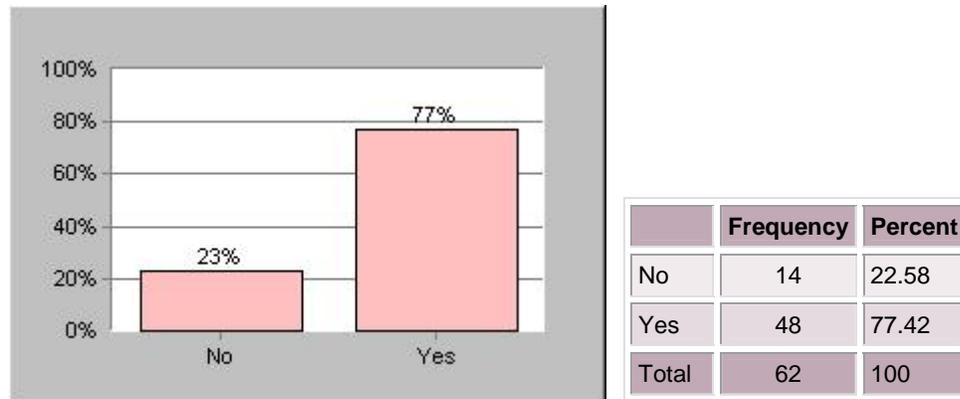


	Frequency	Percent
No	12	19.35
Yes	50	80.65
Total	62	100

Summary: The 50 participants willing to review the draft best practices guide will be given an opportunity in coming weeks. Feedback it generates will be considered for incorporation into the final documentation provided to the Joint ADL Co-Lab.

Question 23

Would you be willing to review the draft functionality requirements document for the new version notification system?



Summary: The 48 participants willing to review the draft functionality requirements will be given an opportunity in coming weeks. Feedback generated may be incorporated into the final documentation provided to the Joint ADL Co-Lab.

Question 24

Please provide any other suggestions that may help us further develop the ADL-Registry in regards to version control and notification.

- *I think it would be neat if they had a portal where they could setup there profile and only receive information on the metadata items they had previously selected. So If have a profile I can tailor it to weither I want to receive emails or just view the information right there. Giving the user the ability to view all the metadata needs to be streamlined. Once they hit 2000 metadata entries retrieving from a website/webapp becomes slow. So it would be neat to streamline it down so that they would not get every entry in the database back when they do the all.*
- *I'd recommend building in ultimate flexibility in how and what types of updates are delivered. Allow users to view updates of all items, a category of items (by search term) or a specific item (by ID) and allow them to get the information via web page, Email or RSS.*
- *Using the scale above I thought neutral should fall between not important and somewhat important*
- *Although we answered limited use for #12, I think that this feature might be used after relevant content was found. For example, if we found a relevant content package announced in a subscription service, we might then want to flag that metadata record but it is unlikely that we would look around the registry for content to flag.*
- *Supporting documentation is a must. CNATT stores all contracts CDRLS and documents that pertain to a delivery as well as other instructions, TSSD (training support system document which lays out a how to guide on updating the, content). All SCORM test logs, other programming scripts as needed. All media for graphics, animations, audio, video. All native files used to develop the final media.*
- *IP rights and copyright licensing solutions similar to creative commons licensing methodologies implemented on social networking sites like ccmixer.org*
- *Angela, the ADL-R questions are not relevant because we are not able to register our content.*
- *Our process depends on much more than what happens in ADL-R. ADL-R is a part of the process, but only one of many factors.*
- *We emphatically wouldn't want to be in a notification system that emailed us or otherwise inundated us with version information about SCOs that we know nothing about and don't care about. As far as I am concerned, that would be noise. The reuse model I'd like to see would involve searching for reusable content with a flexible search engine that could retrieve SCOs based on metadata that matches a particular profile. Ideally, some of those profile elements would be defaulted based on my profile (for instance, I don't want to have to specify language=English every time I do a search). In a perfect world, I would then be able to preview the SCO. I know that this is the point at which the ADL-*

R breaks down. Metadata is not good enough - I have to view the SCO to determine whether it's reusable or not. User ratings and comments on registered SCOs would be a GREAT idea. That's the best idea in this survey, in my opinion. Comments might be able to help us find winners, but I think more likely that comments will help us avoid the losers without wasting a lot of time trying to get access to the SCO and review it. With regard to version updating, I might be interested in knowing when a SCO that we have reused has been updated, but on the other hand, we won't be reusing SCOs that we don't have the subject matter expertise to evaluate. We will be capable of maintaining our own version of the SCO if necessary.

- *The registry should be done at the DOD level. MetaTagging of content should be at the complete thought level not at the lesson / course level. While this requires more work, the payoff would be exponential. For example someone writing a course (or updating content) on the subject of Picking Passwords could use the Registry Search Engine to find all MetaTags with key words of Passwords, Setting Passwords, Picking Passwords, Choosing etc etc etc. They would get a list of many paragraphs or sentences about the subjects.*
- *Please focus on ADL-R intent - no reason to re-create another Joint Portal for people to share information - JKO already has that mission from OSD under T2 - it costs nothing to create one or two more Communities of Interest on JKO....And there is a public Portal version, not just NIPR and SIPR version - so nobody can say they don't have access to those tools and capabilities*
- *Currently, we at CCE within the Academics Department do not participate in scorm materials. We stay abreast of requirements via the DLCC, but are not active in building J/PME compliant courseware.*
- *Again, please consider that CCE is still very inexperienced with the Registry. Our responses to many of these items are "best guess."*
- *Some questions were difficult for me to answer. I did not want to just throw out not applic and neutral. A phone follow up needs to have this question list (with my answers) available for me to review and assist a smooth second contact - Thanks*
- *I think the version updates should be limited to major content revisions only.*
- *Include the version number in the title of the course or in the display listing.*
- *If 9 through 11 were cookie-based, I would not use any. I also prefer to seek rather than have this type of info pushed. 17 - not sure if you mean prerequisite courses or the sequencing tree 20 - would also like to see rating on ease of integration*
- *I think there would great value in having the ability to receive updates on available courseware based upon keywords and metadata. For example, if we are under contract to build CBRNE courseware, I should be able to subscribe to email notifications anytime new CBRNE related content was uploaded.*
- *Thanks for the opportunity to share our thoughts in this survey. This continues the ADL-R tradition of keeping development processes open and shared; i.e., code has typically been accessible, and planned updates and upgrades have been publicly discussed. Future ADL-R development processes should remain open and shared-- much as you are doing with this survey. (E.g., vendors developing "ADL-R solutions" unilaterally and without opportunity for vetting might not be the best trend). Hope you will continue to push the collective ADL-R community to use collaborative development and planning processes.*

Summary: Several valid suggestions were provided and should be considered by the Registry development team. As far as those directly related the Registry VCS, participants recommended: giving users the ability to log into the portal and manage profiles to select relevant content to watch; making the system flexible to allow users to view updates in multiple formats; limiting emails to relevant content items only; adding comments, user ratings, supporting documentation, and alerts based on keywords and metadata for new content.