

Welcome to Certiverse University and to this lesson "**Intro to Job Task Analysis, Part 2**".

My name is Lance Blackstone, I'm one of the Founders of Certiverse and I'll be taking you through this lesson.

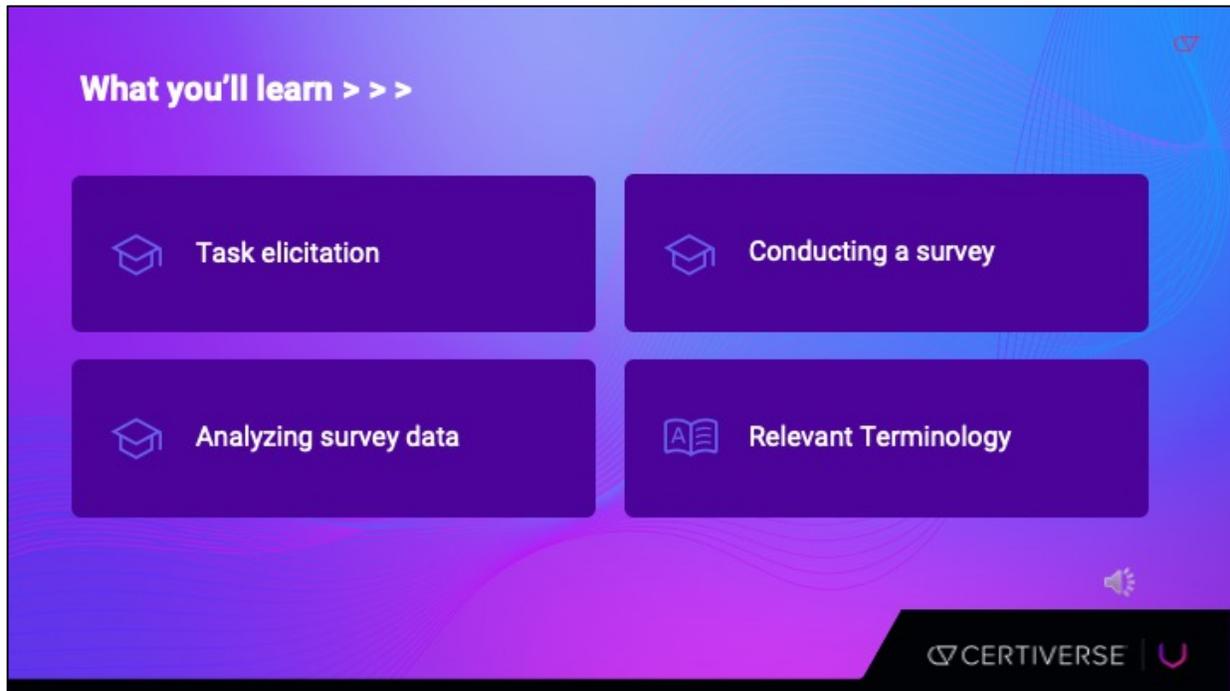
This is part 2 of a 2-part series. This lesson drills down a bit into the details of performing a JTA. If you haven't watched part 1, I'd recommend doing so, then come back to this lesson.

In these two lessons I describe how we can methodically and empirically identify the content that needs to be assessed on an exam. There are a number of names for this process, but for simplicity and consistency, we'll be using the term Job Task Analysis or JTA for short.

A quick, obligatory disclaimer ... this course is intended to be general and not "Certiverse-specific". However, some industry

concepts and terms are variable or can be ambiguous. In those cases, we at Certiverse have sometimes settled on a specific usage.

Thanks again for joining me ... let's get started!



In this lesson we'll be covering the three phases of a JTA in some detail ...

- How we go about identifying and authoring the tasks that make up a JTA or task elicitation.
- How we gather data to validate the initial set of tasks we've authored and identify ones we may have missed via a survey.
- How we use that survey to data to finalize the tasks that are most important, or critical, and how we derive what content needs to be assessed from this analysis
- And as usual, there will be a bunch of relevant terminology you'll learn along the way. Note that all terms are defined in a glossary you

can find on the Certiverse knowledge base.

Why a JTA is needed >>>

An Exam should be based on a thorough analysis of curriculum, job, or role

- > It is critical to know what the exam needs to assess!
- > A JTA tells you what content areas need to be assessed by your exam
- > ... and provides the relative weighting of those content areas

CERTIVERSE | U

As a brief reminder when you need to assess individuals for a job or a role you start by clearly understanding what the exam needs to assess. We determine what is required in the job or role OR in the case of something like a training course, what makes up the curriculum.

- This is critical! An exam that is not aligned to the job or role is not useful and can even be dangerous. We want to be sure that the surgeon operating on you knows where your spleen is!

- We make sure the exam is aligned through a job task analysis ... a collection of methods used to determine the knowledge, skills, abilities, and other characteristics required to perform effectively in a job or role. It tells us what content areas will need to be addressed and measured by the exam.

- Not only does it tell us what content needs to be assessed, it also provides us with a distribution of that content. Through the JTA we identify the importance - or criticality - of each content area in relation to all other content areas.

Elicitation ... identifying tasks > > >

Task Elicitation is used to identify tasks

- > Goal: Identify relevant tasks

Task Elicitation requires:

- > A well-defined Job Role
- > A representative group of Subject Matter Experts [SMEs]
- > SME training & facilitation

CERTIVERSE | U

Task Elicitation has the goal of gathering a broad list of tasks. We want to identify all - or as many as possible - of the relevant tasks. We want to try and minimize duplication and overlap of tasks as well, making tasks as discrete and unambiguous as possible

Successful Task Elicitation includes several critical components.

- The first is a well-defined Job Role. You must have a solid vision for this and be able to effectively communicate this to your SMEs. Speaking of ...
- Second you need a representative group of subject matter experts or SMEs. At its simplest, this group is composed of people experienced in the role to be assessed. The size of the SME group is variable but often we're talking a dozen or

fewer individuals.

- Third, these SMEs must be trained on how to write good tasks and the process needs to be facilitated.

The slide features a blue gradient background with a white title bar at the top. The title is 'Elicitation ... identifying tasks, cont. >>>'. Below the title is a dark blue box containing a white icon of a list with a checkmark and the text 'SMEs are Trained and sponsor Facilitates task authoring'. Underneath this is a larger dark blue box with white text. It starts with a bullet point '> Goal: Identify relevant tasks', followed by the heading 'Training & Facilitation requires:'. Below this heading are three more bullet points: '> SMEs to fully understand job role', '> SMEs learn & follow task authoring best practices', and '> Oversight, coordination, & facilitation of activities'. In the bottom right corner, there is a logo for 'CERTIVERSE' with a stylized 'U' icon.

Elicitation ... identifying tasks, cont. >>>

SMEs are Trained and sponsor Facilitates task authoring

- > Goal: Identify relevant tasks

Training & Facilitation requires:

- > SMEs to fully understand job role
- > SMEs learn & follow task authoring best practices
- > Oversight, coordination, & facilitation of activities

CERTIVERSE | U

Let's talk about the task elicitation step in a little more detail. This step can be very time and labor intensive. You can read that as costly. So, it's good to fully understand what should happen here and do everything you can to introduce efficiency.

I like to think of this in the following three parts ...

- SMEs need to understand the job role explicitly. It's hard to overstate the importance of a shared understanding here. Without it, SMEs will provide off topic or irrelevant tasks and this will complicate collaboration and facilitation and extend the time to get this phase done. You need to get the job description right – and this may require you to accept feedback from your SMEs - and communicate the final product well.
- SMEs need to be trained to write well-formed tasks. As I

mentioned previously, there are best practices that you can follow to assure that tasks are well-formed and broadly understandable to all SMEs. These best practices work regardless of the job role at hand.

- Facilitation involves managing the process ... collecting the tasks, resolving duplication and overlaps, wordsmithing and organizing tasks logically. It also involves managing people, often with strong opinions. That means resolving disputes and disagreements amongst SMEs. This can be hard work!

Note that, traditionally, much of this process is done in person over the course of several days. However, in the modern world, there is much that can be done to streamline this process, to enhance collaboration, to allow for remote and/or asynchronous contribution, to remove or reduce the need for travel, to reduce friction between SMEs, and to allow for broader, more representative participation.

The screenshot shows a presentation slide with a purple and blue gradient background. At the top left, the title 'Elicitation ... identifying tasks, cont. > >' is displayed. Below the title, there is a dark purple box containing a checklist icon and the text 'Task Elicitation is complete when all [or most] relevant tasks are identified'. Underneath this, another dark purple box contains a list of bullet points: '> Goal: Identify relevant tasks', 'Task Elicitation results in:', '> A set of tasks describing the activities performed in the job role', and '> [Often] A set of Domains used to group the tasks into broad content areas'. In the bottom right corner, there is a speaker icon and the logo for 'CERTIVERSE' with a stylized 'U' icon.

The output of the task elicitation phase is ...

- The set of Tasks that describes the work done in the job or role. The hope being that this is a comprehensive list.
- Additionally, it is not uncommon to link tasks to one or more content-based Domains.

This is a good time to briefly discuss the concept of Domains relative to Tasks. Again, Tasks describe the work done in a job, But tasks are often complex, requiring the combination of several areas of knowledge, skill, ability, or other dimensions , These are what domains represent. They represent the content areas making up a task with each task being linked to one or more domains.

Let me give an example:

Let's assume we're developing an exam for some sort of engineering certification. A task might be something like "Design systems for managing stormwater runoff". This one task might be linked to the following four domains: "Regulations", "Design Software", "Planning", and "Surveying". A candidate needs skills in all these domains to execute the singular task "Design systems for managing stormwater runoff".

Domains are more discrete than tasks and they will eventually be the "things" – or content areas - we write test questions to measure.

Survey ... gathering data about tasks > > >

A JTA Survey is administered to gather data about the tasks

- > Goal: Broad review of tasks provides support and validity

JTA Surveys require:

- > A [larger] representative group of SMEs
- > A well-defined job role
- > The set of tasks generated during the elicitation phase

CERTIVERSE | U

Once we have our Tasks (and domains) , we want to get a second - and larger, even more representative - set of eyes on them.

- Recruiting a larger set of SMEs and asking for their feedback in a very structured way provides additional support and validity for the JTA. This group might range in size from dozens to hundreds depending on the pool available to draw on. The instrument we use is a survey in which we ask participants to provide us with several pieces of feedback.
- Again, we need to provide these SMEs with the job role. The SMEs will need to clearly understand the job role in order to provide us with good feedback.
- As mentioned above, we'll be presenting the tasks we have generated to these SMEs to elicit feedback in the form of ratings.

Survey ... gathering data about tasks > > >

Survey participants rate the tasks

- > Goal: Broad review of tasks provides support and validity

Survey participants

- > ... rate tasks on various dimensions such as Importance & Frequency
- > ... identify tasks missed during initial task elicitation
- > ... [typically] provide demographic information about themselves

JTA Surveys result in:

- > A set of survey response data or **Results**

CERTIVERSE | U

Specifically, what data does the survey ask SMEs to provide?

- The primary goal is to elicit ratings on one or more dimensions. A common framework would be to ask the SMEs to provide a numerical rating – say on a scale of 1 to 5 - for both how important a task is and how frequently it is executed or performed. Other dimensions could be used as needed.
- It's also a good idea to ask "What tasks have we missed?" It is not uncommon for the initial set of SMEs to miss something!
- Finally, we often want to know some demographic information about the participants. We'd like to know things like their level of experience in the role & when they held the role. We may also want to know information

about their race, geographic location, and gender in order to make sure we have appropriate diversity in input. These data help us better analyze SME responses in our next step.

The ultimate outcome of the survey is a set of response data, or Results, that will allow us to perform the subsequent analysis.

Analysis ... identifying the critical tasks > > >

Analysis determines the critical tasks

- > Goal: Sort the critical from the non-critical tasks

JTA Analysis requires:

- > A supportable rationale for filtering survey results
- > The ability to apply relevant statistical analyses

CERTIVERSE | U

Now that we have all of our Survey Results, we want to use these data to start looking at which of our Tasks are truly critical to the job or role. We need to apply a layered approach to get to the right answer.

- First, we need to filter our data to make sure we are using "good" data in later steps. For example, perhaps a participant stopped halfway through the survey. This result may not be useful ... we really want and need each participant to rate every task. Another example is a result from a participant that's only been in the role for 6 months. They might not be experienced enough for this purpose. However we do it, we need a supportable rationale for filtering survey results. This means that we are judicious in how we filter the results and we are in no way capricious. We want and need to be able to reasonably defend our decisions here.

- Second, we want to analyze the remaining data – after filtering – to see how the Tasks stack up against each other. To successfully analyze these data, we need the ability to perform the relevant statistical analyses. These are generally not complex, but we do need to do some math to calculate values so we can rank tasks against one another on the dimensions in question.

Analysis ... identifying the critical tasks > > >

Analysis identifies the domains to be addressed in the exam

> Goal: Sort the critical from the non-critical tasks

JTA Analysis results in:

- > A set of calculated Task Ratings describing [typically] their importance and frequency
- > A calculated measure of Criticality for each task
- > Identification of content domains that should be assessed

CERTIVERSE | U

The outputs of these analyses are the following:

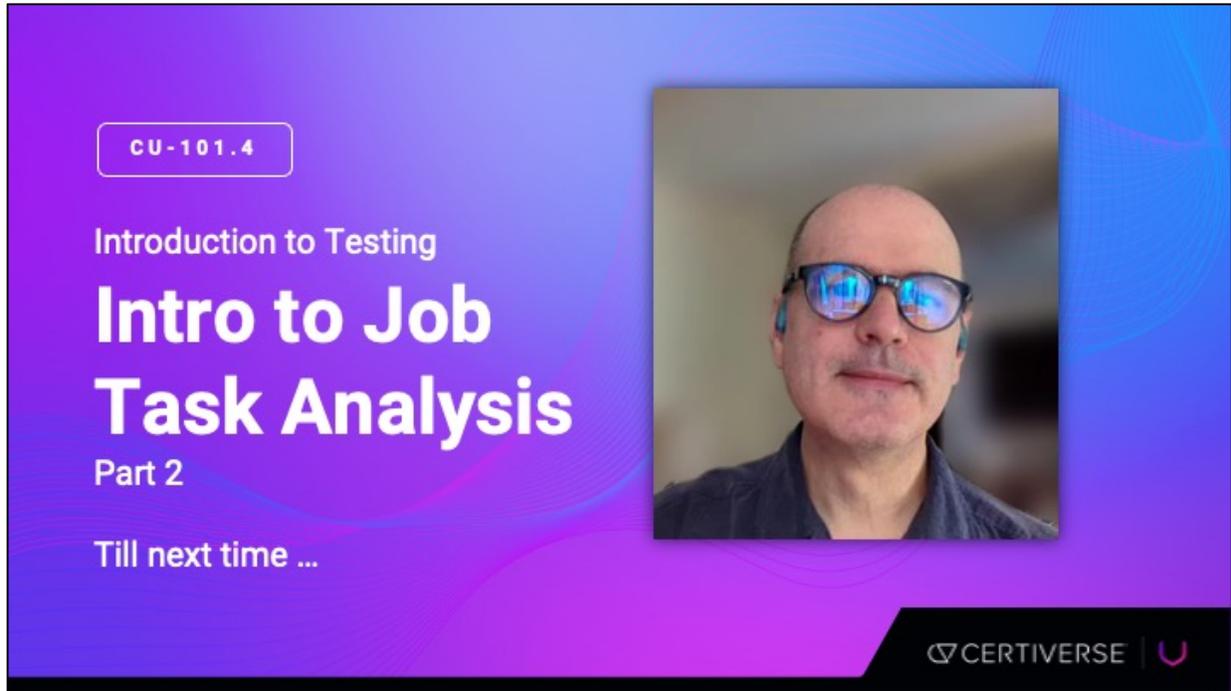
- We calculate a summarized task rating across all results for each of the dimensions that were surveyed, typically "Importance" and "Frequency" but there could be additional or other dimensions. These values can be thought of as a relative weight that each task commands based on survey responses.
- Often, we calculate another value that combines and collapses the multiple task ratings in the previous into a single value, which we call "Criticality". Basically, we assign weights to each surveyed dimension and then do some math to combine them meaningfully into a single, simplified value. For example, we might decide that the Importance dimension gets twice the weight of the Frequency dimension. Whatever your specific approach, again, it needs to be clear and documented so you can

defend your decisions.

- The preceding calculations lead to the consensus identification of the "Critical" Tasks. We do this by establishing a cutoff value for criticality ... if a task's calculated criticality is greater than the cutoff, it moves forward, if not, it is dropped. The surviving tasks are linked to domains, and, simplistically, these "critical" domains become the content areas we will assess on our exam. Further, these data not only tell us what domains we need to assess, but also their relative weighting on the exam. For example, a domain with a criticality twice that of another domain should have twice as much weight on the exam. We'll talk more about this in our discussion of exam blueprints.

•

A final comment. It might be obvious, but it is possible that the JTA process is iterative. You may get feedback at the level of the survey that causes you to reevaluate your initial set of tasks ... maybe you missed a lot or got unexpected ratings for the tasks you did include in the survey. In a case like this it is better to evaluate what is wrong and fix your initial problems than to barrel ahead. You want your JTA to be valid.



CU-101.4

Introduction to Testing

Intro to Job Task Analysis

Part 2

Till next time ...



CERTIVERSE | U

The image is a video thumbnail with a purple and blue gradient background. It features a white rounded rectangle containing the code 'CU-101.4'. Below this, the text 'Introduction to Testing' is in a smaller font, followed by the main title 'Intro to Job Task Analysis' in a large, bold, white font. Underneath the title is 'Part 2' and 'Till next time ...'. On the right side, there is a square portrait of a man with glasses. In the bottom right corner, the 'CERTIVERSE' logo and a stylized 'U' are visible.

That's it for JTAs! I hope this has given you a basic grounding in what is involved in the execution of this important step in the lifecycle of a testing project.

The next step in the testing project lifecycle is the Exam Blueprint. Looking forward to seeing you for that lesson!