

## AUDIENCE ANALYSIS and Modules: Transcript

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### Audience Analysis

- ❖ A quick “coverage” of the topic
- ❖ More than this is possible, but often not practical

We’ve got a couple of things we need to wrap up today, a couple of topics, one that we never got to and one that we never finished, so I thought this would be a great opportunity to talk about a few things—to provide some information. One topic is Audience Analysis, and the other topic is to talk a bit about module possibilities. We don’t need to use the module information in the quarter, but this is the kind of information that you will use to generalize these skills in the future as you apply them in real life in the workplace.

Let’s start by talking about AUDIENCE ANALYSIS.

I want to do some quick coverage of the topic—usually we try to turn the discussion into some type of skill rather than just information, but for our purposes, I want to give you the nuts and bolts of AUDIENCE ANALYSIS in general. There is a lot more that can be done with AUDIENCE ANALYSIS—our book, Mager, is rather brief about the topic. There are others who are more verbose—people who think that AUDIENCE ANALYSIS is everything. My own opinion on this changes from quarter to quarter. There were times when I was fascinated by the cognitive process in the individual learner, but then there are times when I realize that we can’t actually do much—in a practical sense—with some of this information. So take that as background, that there is a lot more that we can do. What I am going to focus on, is what is practical to do, and what is useful to us as Instructional designers

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### What is Audience Analysis?

Gathering data, information, (knowledge?) about would-be students

- A) What do you gather?
- B) What do you do with it?

Let’s define what we are talking about—the real question is: what is Audience Analysis. Better terms might be learner analysis or student analysis. But historically the name Audience Analysis was used, and that name still has stuck around—so let’s go with it. The term refers to gathering, data, information, or knowledge about the potential students in the course—student who are going to take the course or module that you are developing. If you are developing a whole course—it is the students in the course. If you

were developing an entire curriculum, it would be students who are with you for the duration of the curriculum. It is possible to gather a lot of data—to become obsessed with gathering information about the learners, --this is not value-less, but...there are two real questions, the A question and the B question. The A question, what do we really need to gather, and then, the B question, what do I do with the data if I get it?

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## B should determine A...

- ❖ “What can you use” determines

- ❖ “What you should gather”

- ❖ Eg: *Learning Style Data*

My solution is that the B question should determine the A question. So that is not meant to be a theoretical sounding proposition – the ‘B question’ is how do you use what you gather and the ‘A question’ is what should you gather. For practical purposes, what you will use is what you should gather

Most people who gather data realize that data gathering is time-consuming and costly. You don’t get data and information for free. You might think you do—but you really don’t: it costs somebody’s time and effort for analysis and gathering, so you don’t get info for free. It can sometimes be fairly cheap these days—we can get information off the Internet sometimes –but this is not always worth a whole lot. To get information about specific students who are taking your course—that is valuable! And you probably won’t get it off the Internet. So right off the bat, we have to acknowledge that gathering information has a cost, and that’s why we don’t just gather everything we can. We want to be judicious in what we gather, and collect on the information that will have value to us. Data that we will use. Not just surface level stuff that has no point.

So this brings me to the example on the screen: learning style data. Let’s talk a bit about learning styles in general. I’ve said in class many times that learning styles is the “black hole” of instructional design. That doesn’t mean that studying it is completely worthless—just that it is huge drain of time and energy and maybe now I can explain.

The basic premise of learning style research is that students differ from one another. So we are all different, you can probably agree to that—you are different than the person next to you. So what? Well it turns out that we can’t do much with that from an instructional design point of view.

Learning style folks believe that there are certain characteristics that learners have that follow along certain dimensions. And that these dimensions give us insight into people’s personalities or into the way that they approach learning. I can buy that—there are a lot of interesting models and dimensions that people in research have come up with in terms

of looking at the differences between learners. There are classification schemes of how people are different.

Let's take the Myers-Briggs personality type indicator. Many of you are familiar with this—it is quite common. IT is not meant to be a learning style indicator, but rather to be a way of describing the way that people process information about the world. But let me use that as an example—I realize that it wasn't meant to be a learning style inventory—but many of you are familiar with it so let's use it.

If you are not familiar with M-B, it has four dimensions, and each dimension has two values. So you can be introverted or extroverted, you can be sensing or intuitive, you can be feeling or thinking, or you can be judgmental or perceptual. I am doing these off the top of my head—it has been a while, but this is pretty close... So there are 16 possible personality types with some permutation of these letters. For example you can be an ENTP – an external, intuitive, thinking, perceptive personality—that happens to be me, I am an ENTP. MY wife is an ESFJ an extroverted, sensing, feeling, and judgmental personality.

OK – If you figure out all possibilities there are 16 patterns – so in M-B you will be one of 16 types. All of this is OK. Probably no more dangerous than using astrological signs—“I'm a Virgo, you're a Libra.”

So let's assume, for now, that this is true—that is, there are actually 16 personality types. Now the real question is, how do you use this information? That's the million-dollar question. We really don't know how to use this information. If you could determine you were one of 16 types what do we do with that? Well, I could create 16 different instructional modules –hey that's cool. And each module could be targeted to one of the 16 types. That sounds good, until you try going to your boss. Now you have to justify a project that is 16 times the original cost. If it cost you 10,000 dollars for the original project it will now cost you almost 16 times that. Most clients don't want to spend that kind of money—especially because it is based on “soft” data – we cannot really demonstrate very solidly that spending all this extra money will really create any benefits. It is speculative –we can't necessarily be sure that it will produce solid results. If we have two learning styles, we have 2 times the cost, four styles, and then we have 4 times the cost. Most organizations don't have the resources to spend on this type of problem and solution. This is expensive and of questionable validity.

I'm willing to suspend my speculation for a moment and let's say that there are really 16 styles or 50 styles or whatever. What can we do with that? We don't necessarily know how to teach people with these styles, and ethically, do we really want to cater to these people's style. Maybe we are doing them a disservice. My daughter likes to eat candy—that's her preference. So should I just feed her candy all day long? Nutritionists would say, “That's pretty dumb. She needs a lot of other foods to be healthy.” The same argument holds for catering to someone's learning style—are we just making them weak in the long run because the student can't adjust and adapt to other teaching styles? Are we

handicapping them in the long run? Because the student never breaks out of his or her preferred style.

So those are some of the issues—but for now, what dictates what we should gather is what we can do with it. Since we can't do much with 16 learning styles, and it is expensive to gather, we should look for practical information to gather that we can use.

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Entering Skills	help us to draw a line on the hierarchy for entering behavior; alternate (individual) routes to competency
Language	delivery mechanisms (reading, written responses, providing feedback, discussion, terminology)
Motivation	rewards for learning; amount of effort expected; Yerkes-Dodson law (for complex tasks); exploratory behavior

Here's my list—this is a long way from learning styles, but this is my belief that this is what we can gather and in a practical sense what we can do with it.

One of the things we can gather is info about the entering skills of students. So what kinds of skills do they come in with—what can they already do. This is usually referred to as “prerequisite skills” or “prerequisite knowledge.” How does it help us? One thing we can do is take the learning hierarchy and draw a line on it – draw a path through it. We can if necessary, mark off the boxes in a hierarchy that students can already do – skills that they already have. And one thing this shows us is that we don't have to necessarily start at the bottom of the hierarchy and teach everything. We don't have to start at the bottom every single time—if we know that these were the students that were taking the course, we don't have to develop every module. Remember a hierarchy shows us the skills that are needed to achieve the terminal objective, so we can go in and start crossing out the skills that learners already have. It also shows us possible individual paths to competency—not everyone will have to go through every single module—in advance we could set up a “Straw man” path for the average student, and if we can in advance determining the entering skills of student, we can waive him through unneeded

modules. Modules that teach skills that they already have—they can be skipped over. So that is the benefit of knowing what skills the learner already has.

Language skills – we want to find out what language skills the students have. This impacts the delivery mechanism that we can use. If students can't read, then we can't give them print based / text based modules for them to read. We could however, use print based modules that showed them pictures. We can't expect them to read anything if they don't have reading skills. If we have hearing impaired or deaf students, we can't stream audio to them—this audio stream has to be transcribed so that our deaf students can read it. Right away—that doubles the work! Some students might be very weak in writing—ranging from they cannot write at all, to third grade level skills. Others might have advanced writing skills—these language skills all impact how we design the modules. I had an instructor in college who provided feedback on assignments by dictating into an audiocassette tape. It provided a personal feel to it—but you can't do that if students cannot hear.

Language skill also impacts what terminology you can use in the course—whether or not you can use technical terms and acronyms that a student would know. These language skills are pretty critical in most cases.

Finally we can find out the motivational level of the students. Sometimes, frankly, we overwork this one, but it does give us some clue as to how hard students will work, what can be used for rewards for them. The Yerkes-Dodson law claims that there is an optimal amount of motivation for a given task. And that too little motivation—students are asleep! Too much motivation, and students are full of anxiety—they are trying too hard. This impacts students often when they are taking exams—they are too over-motivated. So it's possible to have too much motivation.

<b>Technique</b>	<b>Benefits</b>	<b>Drawbacks</b>
<b>Ask Students (survey)</b>	may be accurate on "facts"	unreliable self judgement of content
<b>Review Course Records</b>	quick; easy to get (if data are kept)	time elapsed since previous learning; objectives of other courses not clear
<b>Entry Test</b>	accurate measurement of entering skills	de-motivating; scary; time consuming to make and implement
<b>Adapt</b>	"invisible" to students	usually requires skillful instructor; difficult to do with mediated materials

Next slide, I listed four techniques for gathering Audience Analysis information. This is a quick list of what is practical not everything that could be done!

1. Ask students/ use surveys. We can simply ask students either in advance or when the first come to the class. We could for example use Internet surveys to gather information about people before a course begins. I did this last year when I had to give a series of talks to the US Government—I first had them fill out an online survey to find out what they already know, and what they were really interested in. Many times, I just ask students to raise their hands once they get to class. The bad news: with this technique is that students are known to be very unreliable judges of their own learning and their own knowledge levels, There is a lot of research that supports this—and we know that students cannot accurately provide information about their learning and how much they have learned. But they can provide accurate data about “facts” things that can be easily recalled, such as what course they have taken, or their age, name, etc.
2. Another technique is to review course records—if we want to know what skills they have, we can review what courses they have taken. If the data is there—in a college or an organization, then you are in pretty good shape—you should have easy access to it. The trouble with this type of data is that it is time-lapse data—the data was gathered sometimes many years ago—and what a student did five or so years ago may not be very relevant today. If a student took programming five years ago, it doesn't tell us much about the current state of those skills. Additionally, sometimes the objectives of courses are unclear – so we have course level data, but its not clear what a course such as “intro to programming” when taken 10 or 20 years ago might have been. I took my first programming course almost 30 years ago! And we used punch cards and a mainframe computer—it didn't look anything at all like the programming courses that I teach now. So completion of a course, from a long time ago, doesn't tell us much.
3. Sometimes we can ask students to take an entry test before they take the course. That does give us a pretty accurate assessment of current skills. Its drawback—it is generally pretty de-motivating. Most people are not thrilled to take a “final exam” on the first day of class. It is very intimidating to have to do so. However, from the instructional design point of view, it provides very accurate data regarding what skills a student really has. But most folks don't like it at all—it makes them feel very ignorant on day one. They are already a bit nerved up. They have to take the equivalent of a final exam on day one—they usually miss 90% of the exam so for the 10% they get right, it might not be worth the effort. I have done this before and students don't like it at all—and its time consuming as well for the teacher. Perhaps if we computerized the tests, then students wouldn't mind it as much. They wouldn't feel as bad about getting most of the questions wrong—and they wouldn't have to worry a bout looking bad in front of the teacher or their classmates. So it has its benefits and drawback.
4. A really common technique is to simply adapt. That is, we simply make instructional decisions right then and there, in the middle of the course. The advantage is that students don't really see the adaptation that happens. Because

they didn't take a big entry-level test—they don't know that they got cycled through a lot of additional material or that they skipped a lot of material. For this to happen, it requires a lot of skill on the part of the instructor. IT requires that the teacher be good at making on-the-fly assessments and that the teacher has a bank of additional material ready to go. WE know that good teachers can do this, but it isn't something that people are born with—it might be hunch on the part of teachers. To develop this in computer-based mediated materials, it requires that a lot of additional material be created in advance. And often we don't want to spend the money on this. With print based material, it may be almost impossible to adapt. Technically, there are branching books that can adapt, but these are often very confusing to students and are rarely used.

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## Module Options

- A lot of options beyond paper and pencil
- Physical Constraints
- Content Constraints

Time now to change our discussion a little bit—let's move away from AUDIENCE ANALYSIS; consider that topic closed. Instead, let's look at some of the options that are possible in module development. In this class we are spending a lot of time on paper and pencil module development, but there are other possibilities, and I want to make sure that you are aware of other possibilities. This is kind of a laundry list of options. Some of the things that dictate to us are a set of physical constraints and a set of content constraints so let's look at each of those.

Physical constraints: there is a laundry list of them

## Physical Constraints:

- time limitations per session
- budget => delivery media
- "required" media
- distance/proximity
- asynchronous student/teacher demands
- synchronous instructional demands
- "home delivery"
- availability of instructors

There are sometimes time limits of instructional sessions. If you are a high school teacher, you get about 40 minutes to do your teaching's if you need more time, or less time you don't get it. You get these standard sessions five days a week and you have to

deal with it. At RIT we get 2 hours twice a week or one four hours block or something like that—again, it is dictated to us, and we don't get any choice. In business and industry, we don't always have those constraints. However, sometimes we get a “one day training seminar” in which we are expected to fill one day and we are given the time constraint in advance. We have said from the start that time is a lousy measure in instruction, but sometimes it is still used.

The budget of the project can dictate the types of media that are used and the overall design. Generally, the more technology you use, the higher the cost of the course. So if we have a very low budget, we might be stuck with a human being in front of a blackboard. Or we may use print-based material—paper and pencil is still one of the cheapest means of delivering instruction. Depending upon ramp-up time, the Internet can be very quick and inexpensive for some situations.

Required media—sometimes the client requires that the module be done a certain way. I have done many of these. Where the client says, we would like some interactive video or we would like digital video in this project. Sometimes they want Web Based Training, even if the training is simply taking pencil and paper modules and sticking them on the web.

Distance and proximity issues mean that sometimes students are not close to where the instructor or the instruction is. In those cases we have to find ways to deal with distance—and that often means lack of coordination between time zones, and busy schedules. Again, self-paced modules work well in this situation. Some of the techniques used in online learning are useful here—I have taught courses in which people are scattered around the world—Asia, South America etc.

Asynchronous demands—are we in a situation in which we cannot get teacher and student face-to-face. In situations in which people cannot leave their jobs, we have to work around it.

Home delivery means that we have to deal with the limits of media at home rather than media at work, where there might be high-speed networks or fancy delivery devices.

And we also have to deal with the limits of a lack of instructors —especially if we are creating instructor led courses.

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## Content Constraints

- variety of prerequisite skills needed
- sequencing decisions/clustering requirements of subject matter (such as motion, sound, etc.)
- interactivity requirements (learning about groups)

There are also content constraints—these are the limitations that come from certain content. In some cases, these constraints come from the specific content that we are teaching.

In some cases, there are a variety of prerequisite skills that are needed. And people might be coming in with a broad range of entering skills

There are also the requirements of the content that requires motion, sound, etc. For example if we are learning to discriminate between sounds, there needs to be sound in the presentation media. If we are learning to discriminate between faces, then we need media that can show faces—graphics. If we need to show motion, then we need media that is capable of showing motion—most likely a book can't do it.

There are also the interactivity requirements – this is specialized, but often if we are studying groups, then we need to be in groups. Often we study ourselves as we interact in groups as part of the content of the course. So sometimes we need human interaction as part of the content. This often self-reflective as we look at ourselves in groups

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## Delivery Media

- Classroom (with instructor)
- STAND-ALONE:
  - CBT from machine or Web (WBT)
  - Print-Based
  - Linear video ... interactive video
  - Web conferencing/distance education

“Standard” classroom instruction with an instructor is pretty typical in college but it doesn't have to be done that way. We sometimes have trouble thinking outside the box because we see so much of this in college.

There are also a variety of stand-alone delivery media. Stand alone means that we do not need the instructor, that the instructor's role has been designed into the presentation, and hence the media can stand-alone. We have in essence, factored the instructor out—we don't need a human being associated with the module anymore.

CBT—computer based training either from a CD on the local machine, or across the Internet. Often if it comes from the Web it is called WBT—Web Based training, although in the design sense, it doesn't really differ very much if it comes across the web or it comes from your local machine.

In our fundamentals class, we are working on print based materials—again we have carefully designed the instructor our, so we can just hand someone our print based module and it should work.

Linear video and interactive video—we pop a cassette into the VCR and we just watch the video. Interactive video these days is a computer program that supports digital video, and the student might have controls to stop, rewind, and interact with the video in some way Usually the student answers questions about the video.

Teleconferencing and videoconferencing are distance-learning techniques—essentially you put a camera in two locations and give people (usually students and teachers) and opportunity to speak with each other in real time. I have done this type of course, and it is kind of a pain, but better than nothing! Text based chat programs that are popular now, such as instant messenger, can also be used for real time communication and chatting. All of these can function as delivery media.

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## Warning!

- "*Traditional instruction*" is undefined.
- Beware of any comparison that doesn't specify what is meant by that term... because it is a setup

So now let's start to wrap up. A quick warning: sometimes people will ask, "Which is better" traditional instruction or computer based instruction. Beware of these types of comparisons because they are often a set up. We really don't have a definition for traditional instruction, so people are shooting at something that doesn't exist. Think of any two classes that you have taken in a classroom. Some instructors are passive—they lecture all day. Some are more active, involving the students in activities, discussions, etc. So which of these is "Traditional" instruction. You get the idea—neither, both, either...we don't really know what traditional instruction is. It really bugs me to use this term, because researchers use it—and they don't know what they are talking about either—and they should know better, but often they don't. So don't fall into the trap of comparing things that are not defined. Generally speaking, all media are the same—one is not better than another.

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# What are we designing

- Lesson plans (used with teachers)
- Teaching Materials (used with teachers)
- Complete "stand alone" lessons
  - "self-paced" = no teacher required

Finally, what types of things might we design: Teachers sometimes speak of writing and designing lesson plans. A lesson plan is basically an outline of what the teacher will do in class—specifying a general time frame and specifying the activities that students will engage in. However, it is not stand-alone—lesson plans require a teacher to implement them. And despite what teachers say, it is very difficult to share lesson plans—it's hard to follow someone else's cryptic classroom design. We can also develop teacher-support material. Again, this assumes that a teacher is there to work with students, and therefore the material doesn't have to be complete. The teacher fill sin the blanks surrounding the material—so the teacher might create practice exercises, or provide additional examples, etc.

We have spoken a lot about “self paced” or stand alone instruction. That is a euphemism for saying instruction in which there is no teacher. So self-paced and stand-alone mean essentially the same thing: there is no teacher there to make up for any shortcomings in the instructional material. Which puts a lot of pressure on us as designers to make sure that our work is good enough to stand on its own.

I gave you a lot of material, and not much opportunity to work with it—but hopefully this will make some sense to you—feel free to come back to this at your convenience.

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