IPT Comprehensive Exam
Guidelines for Students

Department of Instructional & Performance Technology
Boise State University
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Introduction

Purpose
The purpose of this document is to help you prepare for your comprehensive exam. Sections 1 through 4 describe the comprehensive exam as a culminating activity for the IPT master's degree program. Section 5 and Appendix D provide practical guidelines for developing your answers and preparing for the exam.

If you have questions about the information in this document, contact Carol Porter at carolporter@boisestate.edu

Ms. Porter is an instructor with the IPT department who has taught the exam prep course (IPT595). Information about Ms. Porter can be found on the IPT website at http://ipt.boisestate.edu/faculty/cporter.htm

Key ideas
You will find that 5 key ideas that are stressed throughout this document. Keep these ideas in mind as you prepare for the exam. They will guide your preparation and increase the likelihood that you will perform well during the exam.

Key idea #1 – Review, review, review
The comprehensive exam is an opportunity to reflect on all that you have learned in the IPT program and demonstrate that you have developed an informed opinion about the issues important to IPT. So, you will want to review all of your IPT courses, especially the core courses:

- IPT529 Needs assessment
- IPT530 Evaluation methodology
- IPT535 Principles of adult learning
- IPT536 Foundations of IPT
- IPT537 Instructional design
- IPT560 Human performance technology

Start with the goal of explaining the content of that course and its relationship to other IPT courses to both fellow practitioners and people who are unfamiliar with IPT. Use this review as an opportunity to synthesize what you’ve learned.

As you review each course, write notes. These notes might take the form of an outline or mindmap that helps you to see relationships among people and ideas. Be sure to record your sources so that you can go back and refer to them as needed while you prepare. It is important that you can point to the sources and ideas that have informed your opinions.
Key idea #2 – There is often no “one right answer” to a question
There are questions that will have a “right” answer – for example, questions about who developed a particular model, when the model was developed, or the elements of the model. However, there are no correct “textbook” answers to many of the exam questions. Different people with have different perspectives based on their knowledge and experience. What is important is that you demonstrate, in conversation with your examiners, that your answers are grounded in IPT research and practice of and that your opinions are informed by IPT course content.

Key idea #3 – Find truly unresolved issues for your submitted questions
In every field there are issues relating to theory, practical application, ethical behavior or even scope of practice for which there is no definitive answer. IPT is no different. Identifying and being able to describe these issues is important for qualified professionals in the field. In choosing and describing issues for your submitted questions, you make sure that you are describing these unresolved issues.

Key idea #4 – Practice, practice, practice
It is not enough to review your courses and gather ideas about the questions before the exam. You really want to be comfortable talking about the material with fellow practitioners and scholars. This means practicing your answers orally and responding to follow-on questions about them. The more you practice the more comfortable you will become with the material. This is particularly important because an oral exam may be a new experience, especially if you completed most of your IPT courses online. Practicing will help you synthesize information from various courses, rehearse your answers, and engage in the kind of verbal dialog that will take place during the exam.

Key idea #5 – Be prepared to explain anything you mention during the exam
The “published questions” provide a rough outline for the exam. However, it is important to remember that there is no set agenda for the exam. The examiners will frequently use follow-on questions to ask for clarification and explore the depth and breadth of your understanding about specific aspects of IT and PT. The trigger for these follow-on questions will often be something that you say. So, remember that anything (or anyone) that you mention during the exam is fair game for a follow-on question. Be prepared to clarify, elaborate, and explain.
Section 1 – Eligibility

Before you can take your comprehensive exam, you must:

(1) Complete or be enrolled in your 33rd IPT credit, including all required IPT courses.
(2) Submit an Application for Admission to Candidacy (AAC) form, signed by your academic advisor.
(3) Enroll in at least 1 credit during the semester in which you take the comprehensive exam. During the fall or spring semesters, you can meet this requirement by enrolling in any course, including IPT600 (Assessment). During the summer semester, you must enroll in IPT600 (Assessment).
(4) Schedule an exam date by the first day of the semester in which you plan to take your comprehensive exam. Information about this can be found on the IPT website at http://ipt.boisestate.edu/CurrentStudents/2graduate.htm.
(5) Complete the requirements for any courses in which you have received a grade of I (Incomplete).
Section 2 – Purpose of the Comprehensive Exam

“A comprehensive examination assesses depth and breadth of knowledge” (2009-2010 Boise State University Graduate Catalog, p. 31). To put this another way, your comprehensive exam is a conversation with your examiners (fellow IPT practitioners and scholars) that enables you to demonstrate the depth and breadth of your IPT-related knowledge and skills.

Depth means that your answers to the exam questions demonstrate your IPT knowledge at the higher levels of Bloom’s taxonomy. For example, in discussing IPT tools and models, you should be able to:

- **Apply** Select and use IPT “tools” (Appendix B) to improve learning or performance in specific situations
- **Analyze** Explain how the tools you’ve selected relate to one another and to the ISPI HPT model
- **Synthesize** Combine multiple tools to create a coherent approach to a unique problem
- **Evaluate** Explain the benefits and limitations of a particular IPT tool in a given situation

Breadth means that the exam is comprehensive. Your answers to the published questions should demonstrate your knowledge and skills related to:

- **IPT Learning Goals** A set of professional competencies that you should possess when you graduate from the IPT program (Appendix A).
  [http://ipt.boisestate.edu/AboutProgram/competencybased.htm](http://ipt.boisestate.edu/AboutProgram/competencybased.htm)
- **IPT Theorists** Researchers and practitioners who have contributed “tools” (models, concepts, principles, theories, and strategies) that you learned about in your IPT courses
- **IPT Tools** A set of “tools” (models, concepts, principles, theories, and strategies) applied to the 5 phases of the ISPI HPT (Appendix B).
  [http://www.ispi.org/uploadedFiles/ISPI_Site/About_ISPI/About/whatshptmodel.pdf](http://www.ispi.org/uploadedFiles/ISPI_Site/About_ISPI/About/whatshptmodel.pdf)

As you prepare for the exam, it is important to keep in mind that there is “no one right answer” for many of the questions. You will want to demonstrate that, based on your coursework, you have come to an informed opinion about each question.
Section 3 – The Comprehensive Exam

The comprehensive exam will last approximately 90 minutes. Two members of the full-time IPT faculty will ask questions and evaluate your responses. The flow of the exam is typically more like a conversation than a question and answer session.

The comprehensive exam comprises two parts:

1. A series of “published questions” related to performance technology (PT) and instructional technology (IT) that you will be expected to answer.
2. A set of three submitted questions that you will submit describing unresolved issues in IPT.

1) Published questions

When you schedule your exam you will receive the current Comprehensive Examination Information which contains:
   a. A set of questions about PT.
   b. A set of questions about IT.
   c. Information about how to identify and describe a prescriptive principle based on an IPT model or theory.
   d. Information about requirements for your submitted questions.

These questions are provided in advance to help you organize your thoughts about IT and PT. They will also form the general outline for the exam, although it’s important to remember that there is no set agenda for the exam and that each exam is different. Most often, the examiners will ask you to begin with your definition of either PT or IT. The subsequent discussion will be based on your definition and elaboration. However, faculty examiners may omit, rephrase, revise, and/or seek clarification or elaboration on any of the published questions. They are also likely to ask other questions in order to assess the extent to which you have synthesized what you’ve learned in the program and your ability to think on your feet.

2) Submitted questions

At least two weeks prior to your scheduled exam date, you will submit three questions relating to unresolved issues in IPT. You can base your submitted questions on issues that arose in discussion in one or more IPT courses, but you are not limited to your IPT courses. You can also base your submitted questions on issues that you have encountered in the workplace or in outside reading.

Your examiners will review the three questions that you submit to ensure that there is sufficient scope for discussion and reasoned conclusions. If they have questions or are not satisfied with one or more of the submitted questions, they will contact you for clarification or revision.

During the comprehensive exam (usually at the end), your examiners will select one of these questions for discussion.
Section 4 – Evaluating your Responses

At the end of the comprehensive exam, the examiners will ask you to wait outside for a few minutes (if you’re taking the exam on campus) or place you on hold for a few minutes (if you’re taking the exam by phone) while they confer about your performance. When they return, you will receive a grade of either Pass (P) or Fail (F).

If you receive a P grade
You have satisfied this degree requirement and will be eligible for graduation if you successfully complete any remaining IPT courses.

If you receive an F grade
You can repeat the exam once, during a subsequent semester.

To repeat the exam, you must:
• Submit a written (email) request to the IPT Department Chair within 5 working days of the first exam
• Complete the second exam within 12 months.

If you receive a P grade for the second exam, you have satisfied this degree requirement and will be eligible for graduation if you successfully complete any remaining IPT courses.

However, you will be administratively withdrawn from the IPT program if:
• You do not submit a written request to retake the exam.
• The IPT department does not approve your request.
• The second exam is not completed within 12 months.
• You receive an F grade on the second exam.
Section 5 – Preparing for the Comprehensive Exam in 5 Steps

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<thead>
<tr>
<th>Step 1</th>
<th>Review the exam questions and identify appropriate sources</th>
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<tr>
<td>Step 2</td>
<td>Draft and revise your answers to the published questions</td>
</tr>
<tr>
<td>Step 3</td>
<td>Write your submitted questions and submit them at least two weeks before the exam</td>
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<td>Step 4</td>
<td>Practice your answers</td>
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<td>Step 5</td>
<td>Anticipate follow-on questions and finalize your notes</td>
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Step 1 – Review the Exam Questions and Identify Appropriate Sources

KEY IDEA – REVIEW, REVIEW, REVIEW

(1) When you receive the Comprehensive Exam Information, review the document thoroughly. Note the deadlines. Identify any questions that you have about the information in the document. You may also want to jot down your initial thoughts about each question.

(2) If you wrote notes for each IPT course (key idea #1, Introduction), you will already have a good idea of where to look for answers to the published questions. If not, review course syllabi and readings, especially for the core courses, to identify appropriate sources to draw during the exam. These are the first and best sources of information for your exam. As you review, note articles, discussions, and past projects that you want to refer to in response to the published questions.

(3) Although it is NOT required, you may also want to do some additional research to identify current sources that more specifically address some of the published questions. If you use outside materials, make sure that they are peer-reviewed, reliable sources like *Performance Improvement* or *Performance Improvement Quarterly*. University websites can also be a good source. However, if you consult university websites, make sure that you are not reading student papers – which might not be completely accurate.

In addition, the websites of well-known IPT professionals such as these can also be helpful:


There are also a number of video resources on the web that may be of interest such as:

- Rosenberg – [http://video.google.com/videoplay?docid=9001322087016410278&ei=wXsHSv26HJG8qwKTP_iqBw&ei=Marc+Rosenberg&hl=en](http://video.google.com/videoplay?docid=9001322087016410278&ei=wXsHSv26HJG8qwKTP_iqBw&ei=Marc+Rosenberg&hl=en)
- Skinner – [http://www.youtube.com/watch?v=mm5FGrQEyBY](http://www.youtube.com/watch?v=mm5FGrQEyBY)
- Skinner – [http://www.youtube.com/watch?v=mm5FGrQEyBY](http://www.youtube.com/watch?v=mm5FGrQEyBY)
- Thorndike – [http://www.youtube.com/watch?v=BDujDOLre-8](http://www.youtube.com/watch?v=BDujDOLre-8)

**Note:** In the past, students have gotten in trouble by relying on incorrect information posted on web on sites like Wikipedia or [http://tip.psychology.org/](http://tip.psychology.org/) Wikipedia can be useful source to begin
review of a topic and its founder claims it contains fewer errors per page than Encyclopedia Britannica entries. However, entries are usually not submitted by experts. In contrast, entries in specialized encyclopedias, such as The International Encyclopedia of Communication, are written by authors who possess expertise in a given area. As a result, these specialized encyclopedias are considered more credible sources of information for graduate-level work. So it is always best to verify the information that you find in general web searches and sources like Wikipedia before relying on it during your exam.

**Step 2 – Draft and Revise Your Responses to Section A Questions**

**KEY IDEA – THERE IS NO “ONE RIGHT ANSWER”**

Once you have gathered appropriate sources, you will want to start drafting and refining your answers to the questions. Recall that the purpose of the comprehensive exam is to demonstrate the “depth and breadth” of your knowledge of IPT (Section 2) and to show your mastery of the IPT learning goals (Appendix A). With that in mind, here are some suggestions for developing your responses to the published questions.

1. Use the published questions to organize your notes. Keeping the questions in front of you as you work helps ensure that you answer the question that is being asked.

2. Stay within any specified formats and length limits. For example, one of the published questions asks you to define performance technology “in 25 words or less.” This specification is not arbitrary. Creating a clear and concise definition demonstrates a higher level of understanding than quoting someone else’s definition or creating a more lengthy and complicated one.

3. Draft your responses to each of the published questions. The key to remember that this is an opportunity to demonstrate your ability to communicate effectively (IPT learning goal #8) and to demonstrate the breadth and depth of your IPT-related knowledge and skills. Appendix D contains suggestions for how to approach the exam questions. Think of these as guidelines to help you frame your responses, rather than “rules” that you must follow.

4. Think about the terminology that you use as you draft your answers. When physicians talk about diagnosis and treatment among themselves, they use their own professional terminology. IPT practitioners also use a professional terminology. Our professional terminology isn’t always as precise as that used by physicians. As a result, it’s a good idea to be clear about your use of IPT terms. Before your exam, think about what you mean by terms such as:

   a. Technology
   b. Hard Technology vs. Soft Technology
   c. Instructional Technology vs. Educational Technology vs. Performance Technology
   d. Training vs. Education
   e. Learning vs. Behavior vs. Performance
   f. Means vs. Ends
   g. Systemic vs. Systematic
   h. System thinking vs. Systems thinking
   i. Engineering
j. Scientific
k. Needs Assessment vs. Needs Analysis vs. Performance Analysis vs. Front-End Analysis vs. Training Needs Assessment vs. Job Analysis vs. Task Analysis vs. Cause Analysis vs. Subordinate Skills Analysis

And be prepared to explain your definitions during the exam.

(5) Revise, revise, revise
Every writing and presentation task is a repeating process of

Draft/Rehearse

Revise

Preparing for your comprehensive exam is no exception. So continually review and revise your notes for:

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<tr>
<th>Clarity</th>
<th>This means that your response to a question makes as much sense to the individuals hearing it as it does to you. For example, eliminate or explain any organization-specific jargon and acronyms that your examiners might not understand.</th>
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<tbody>
<tr>
<td>Correctness</td>
<td>While there is “no one right answer” to each question, you want to be accurate in your descriptions. For example, if you describe an IPT model, your description should be accurate, as outlined by its creator, or you should be able to explain your variation from the original.</td>
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<tr>
<td>Coherence</td>
<td>This means that your response actually answers the questions that was asked. Every question is open to some level of interpretation. But you should ensure that your interpretation is reasonable. For example, it would not make sense to describe Kaufman’s OEM if your examiners ask you about Gilbert’s BEM.</td>
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<tr>
<td>Consistency</td>
<td>Review your answers to ensure that they are internally consistent and that your response to one question does not contradict your response to another question. For example, if your answer to one question describes an IPT model and your answer to another question describes an application of that model, make sure the application actually follows the model.</td>
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The bottom line is to make sure that you answer the question that was asked and that your answer is a informed opinion that reflects the depth and breadth of your understanding of IPT.

**Step 3 – Write Your Submitted Questions**

**KEY IDEA – FIND AN ISSUE THAT IS TRULY UNRESOLVED**
As stated in the Comprehensive Exam Information,

The purpose of the questions you submit for your examination is to give you the opportunity to demonstrate a mature view of the field of instructional and performance technology (IPT). A qualified professional in any field should have an idea of not only the strengths of that field but also its limitations. Every field, including IPT, has numerous unresolved issues in the areas of theory, practice, research, ethics, boundaries, etc. It is natural for alert students in any field to perceive many such inconsistencies, questions, and unsettled issues. Such issues often constitute the cutting edge of the profession.

The Comprehensive Exam Information further describes 4 steps.

(1) Identify a point of debate or dispute related to IPT that the field has yet to resolve.

Here are a few suggestions for identifying issues in IPT that can form the basis of submitted questions:

- Think back to your courses. Were there issues that you believed had no definitive answer? If so, they could be good sources of submitted questions.
- As you reviewed your course readings, were there any issues for which you believed there was no agreed upon answer? If so, they could be good sources of submitted questions.
- Review some issues of professional journals such as *Performance Improvement* and *Performance Improvement Quarterly*. What are people talking about? Are there any issues for which people are writing rebuttals or offering different perspectives? If so, these might be good sources of submitted questions.
- Think about a project — for a class or your job. What models and theories did you apply? Have you wondered whether another model or theory might have been better or have resulted in a different outcome? If so, this might be a good source of a submitted question.

What’s really important is that you avoid submitted questions that have an agreed-upon answer. For example, consider this question:

Under what conditions should a performance technologist use norm-referenced testing, and when should he or she use criterion-referenced testing?

There is little disagreement in the IPT field about this, so it would not be a good issue for a submitted question. The key, then, is to find questions for which there really is a difference of opinion. To demonstrate the breadth of your understanding of the field, choose issues from both PT and IT and from different phases of the ISPI HPT model. For example, instead of addressing writing questions about motivation in both PT and IT, you might write questions about motivation in PT and needs analysis in IT. Once you have some ideas, write the questions using the structure described in the next step.

(2) State the issue briefly in exactly this form: “Under what conditions should a performance technologist (do ABC), and when should he or she do (an alternative to ABC)?

The Comprehensive Exam Information provides these examples:

- Under what conditions should a performance technologist perform a goal analysis, and when should he or she go immediately to the subordinate skills analysis?
• Under what conditions should an performance technologist tackle any and all types of factors that affect performance, and when should he or she stick to a list of accepted instructional or performance intervention types (leaving other interventions to professionals in other disciplines; e.g., engineers, counselors, etc.)?
• Under what conditions should a performance technologist follow a theoretical template when designing or implementing an instructional or performance intervention, and when should his or her experience-based intuitions be followed?

Now it’s time to take the issues that you have identified and decide on the logical alternatives that it presents. Once you have two distinct alternatives, you can plug them into the template:

“Under what conditions should a performance technologist _____________, and when should he or she ________________?

What is a distinct alternative? To use the first example from the Comprehensive Exam Information, it presents two clear alternatives

Under what conditions should a performance technologist perform a goal analysis, and when should he or she go immediately to the subordinate skills analysis?

On the other hand, something like

Under what conditions should a performance technologist perform a organizational analysis, and when should he or she perform a performance analysis?

Does not really present two clear alternatives because, according to the ISPI HPT model, an organizational analysis is part of a performance analysis.

Note: You are not permitted to use the questions described in the Comprehensive Exam Information verbatim, but you can modify them and use a similar question if you want to.

(3) At the time of the examination, be prepared to discuss both sides of the issue, give your opinion as to which side you favor, and explain why. The purpose is to show your wisdom and good judgment.

In describing the issue during your exam, avoid unsubstantiated opinion and absolutes such as "we must ...." or "we have to ...." Opinions are fine, but you should be able to back them up based on the science, theories, and models of our field. Your examiners will be looking for you to explain why a course of action is preferable.

With this in mind, it is a good idea to identify sources that support both sides of your argument before you submit your questions to your examiners.

(4) Submit the three examination questions at least two weeks before you actually take the exam.

(5) Your examiners will review them and let you know whether they have been accepted. If they have questions or concerns they will contact you for clarification. If a question is not accepted, they will give you feedback about revising or replacing the question. During your exam, the examiners will select one of your submitted questions for your to answer, but will not tell you which question in advance.
**Step 4 - Practice, Anticipate Questions, and Finalize your Notes**

**KEY IDEA – PRACTICE, PRACTICE, PRACTICE**

The comprehensive exam is based on the published exam questions, your submitted questions, and your responses to those questions. However, it’s important to remember that there is no set agenda. During the exam, the faculty examiners will ask you to clarify and expand on your answers. In addition, they will ask questions designed to assess:

- The depth of your knowledge, including your ability to:
  - **Apply** Select and use IPT “tools” to improve learning and performance in specific situations
  - **Analyze** Explain how different IPT tools relate to one another and to the ISPI HPT model
  - **Synthesize** Combine multiple tools to create a coherent approach to a unique problem
  - **Evaluate** Explain the benefits and limitations of an IPT tool in a given situation
- Your ability to “think on your feet”

Recall that this is an opportunity to demonstrate your ability to communicate effectively (IPT learning goal #8 – Appendix A). With this in mind, here are 2 guidelines to help you prepare for the exam.

(1) **Review all of your responses**
   If you’ve drafted answers to the questions (step 3), this is a good time to review those answers. You should be able to explain any aspect of your answer in a way that adds to (and does not contradict) the information in your original answer. This is also a good time to go back to the original sources and refresh your memory about the details of models and theories mentioned in your answers to ensure that you understand them and can describe them clearly.

(2) **Practice saying your answers aloud**
   Writing your responses helps you to formulate and clarify your ideas. However, you will be expected to give your responses orally. Your examiners will be assessing your ability to talk about IPT, not read a prepared statement. You’re permitted a few pages of notes, and can read short responses such as definitions, but the majority of your exam will take the form of a conversation. So rehearse your answers – several times. This is partly a matter of your own comfort. In general, the more you rehearse your answers, the more comfortable you will be in your exam and the better your answers will be. Record your rehearsals. Then listen to the recordings and critique your answers. Ask someone else to listen to your responses and critique them.

**Note: IPT faculty aren’t allowed to help you with this – sorry.**

The primary question that should guide your rehearsals is: What can I do to make my responses better than they are? During each rehearsal, look for:

- Clarity of the information – Did you present the information in a way that was clear and easily understood?
- Logical flow – Did you organize your response in a way that was clear and coherent?
• Distracting mannerisms – Did you frequently say “um” or “uh?” Did you shuffle your notes or do anything else that diverted attention away from the information you were presenting?
• Strong points – What stood out as aspects of your responses that were particularly effective? What can you do to build on these strengths?
• Weak points – What stood out as aspects of your responses were particularly ineffective? What can you do to strengthen these weak points

**Step 5 – Anticipate Questions and Finalize your Notes**

**KEY IDEA – BE PREPARED TO EXPLAIN ANYTHING YOU MENTION DURING THE EXAM**

Remember that the comprehensive exam is a conversation with your examiners that enables you to demonstrate the depth and breadth of your IPT-related knowledge and skills. As a conversation, the examiners will frequently use follow-on questions to ask for clarification or elaboration as a way of exploring the depth and breadth of your knowledge and assessing your ability to think on your feet.

With this in mind, here are 2 guidelines to help you prepare for the exam.

1. Anticipate follow-on questions. There is no set agenda for the exam, so this will be difficult to do. However, there is one guiding principle here:

   **Anything (or anyone) you mention to is fair game for a follow-on question.**

   For example, if your examiners ask you whose work has influenced you and you answer “Thomas Gilbert, because his leisurely theorems really get to the heart of performance technology.” You might anticipate follow-on questions such as:

   • What is the “heart” of performance technology?
   • What are Gilbert’s leisurely theorems?
   • Have you ever used them in practice? When? (If not, when would you suggest that they could be used?)
   • What did/would they do for you in that situation that the Rummler and Brache Matrix or Harless’s FEA would not have done?

   Or, imagine that your examiners ask you to name four major contributors to instructional technology and your answer refers to Edward Lee Thorndike, Benjamin Bloom, Robert Gagné, and David Merrill. You might anticipate follow-on questions such as:

   • What do all of these people have in common?
   • Each of these people talk about objectives, how do they use them differently?
   • Both Bloom and Gagné developed taxonomies, what are the parallels? How do they differ?
   • Merrill’s work builds on Gagné’s, how are they similar and how are they different?

   Naturally, this dialog will be different for every exam. The point is that the faculty examiners will use follow-on questions to explore the depth of your IPT knowledge. As much as possible, you should anticipate follow-on questions during your preparation for the exam. You might also want to practice answering these kinds of questions and include information about possible follow-on questions in your notes.
(2) Finalize your notes. You can use notes during the exam. And if you've been developing notes as you review for the exam, you can turn those notes into a “job aid” for your exam – something that will help you feel comfortable during the discussion and increase the likelihood that you'll do a good job. This job aid can be up to 3 pages long and can include notes, diagrams, or anything else that you might find useful during the exam. Regardless of the form, the purposes of your presentation notes are to:

- Help you stay on track
- Remind you of the information that you want to present

The key here is to make your notes as “user-friendly” as possible. You don’t want to spend a lot of time during the exam flipping through your notes. So make sure that it’s easy to find relevant information in your notes and that your notes are easy to read.
Appendix A – IPT Learning Goals

Master's degree program learning goals

Rigorous
1. Conduct the HPT process in a way that is systematic.
2. Conduct the HPT process in a way that is systemic.
3. Conduct the HPT process in a way that is consistent with established professional ethics.
4. Conduct the HPT process in a way that is consistent with established professional standards.

Responsible
5. Align performance improvement solutions with strategic organizational goals.
6. Make recommendations that are designed to produce valued results.

Respectful
7. Collaborate effectively with others, in person and virtually.
8. Communicate effectively in written, verbal, and visual forms.

Reflective
9. Use evidence-based practices.
10. Contribute to the professional community of practice.
Appendix B – IPT tools

1. Gilbert’s first, second and third leisurely theorems
2. Rummier’s and Brache’s performance matrix
3. Langdon’s language of work (LOW)
4. Mager’s and Pipe’s performance analysis flowchart
5. Kaufman’s organizational elements model (OEM)
6. Marker’s synchronized analysis model (SAM)
7. Scott’s organizational systems types
8. A logic model for evaluation based on Kellogg’s guidelines
9. Evaluation conducted with the Key Evaluation Checklist (KEC)
10. Brinkerhoff’s success case method
11. Kirkpatrick’s 4-level model of evaluation
12. Thorndike’s Law of Identical Elements
13. Principles of Reinforcement from radical behaviorism
14. Cognitive Information Processing Model (computer analogy)
15. Knowles’ Core Adult Learning Principles
16. Mezirow’s Three Phases of Transformational Learning
17. Bloom’s taxonomy of educational objectives
18. Mager’s 3-part method for writing instructional objectives
19. Keller’s ARCS model for motivational design of instruction
20. Harless’ 13 “smart” questions
21. Procedural analysis, learning hierarchy analysis or other established task analysis method
22. Bronco ID model or another established ID model
23. Merrill’s first principles
24. Gagne’s 9 events of instruction
25. Authentic learning assessment
26. Broad & Newstrom’s strategies to promote transfer of learning
27. Business Logic Model of Silber and Kearny
28. Marker’s Six-P Framework for Evaluation
29. Five Stage Change/Implementation model (Based on Rogers and Kotter)
30. SWOT Analysis
31. Force-Field Analysis
32. Double-Loop Feedback
33. Other – Describe an established tool that is not listed in this matrix:
Appendix C – Published exam questions

(1) Performance Technology

a. Define performance technology (PT) in 25 words or less. Then explain your definition.

b. Describe performance technology as a field.
   Your response must include:
   • Goals and directions of the field
   • Historical foundation (where did it come from)
   • Names and contributions of at least four prominent figures associated with the field of PT
     (these might include leaders, practitioners, researchers, writers, proponents, and/or creators of theories or model.
   You may also be asked to address one or more of the following:
   • In what contexts or settings is PT practiced?
   • What are the typical deliverables associated with PT?
   • How would you describe the work of a PT practitioner?
   • What is the status of research in the field?
   • What standards exist in the field?
   • What important models are used in the field?
   • What adjectives describe the characteristics of the field (e.g., relatively new but growing,
     results-oriented, eclectic, systems-oriented) and why?

c. State a concrete example of a performance need where the intervention would be primarily non-instructional, describe a possible intervention, and explain why this type of intervention is appropriate.

d. State and describe the process you believe should be followed when creating a performance intervention.

2. Instructional Technology

a. Define instructional technology (IT) in 25 words or less. Then explain your definition.

b. Describe instructional technology as a field.
   Your response must include:
   • Goals and directions of the field
   • Historical foundation (where did it come from)
   • Names and contributions of at least four prominent figures associated with the field of IT
     (these might include leaders, practitioners, researchers, writers, proponents, and/or creators of theories or models.)
   You may also be asked to address one or more of the following:
   • In what contexts or settings is IT practiced?
   • What are the typical deliverables associated with IT?
   • How would you describe the work of an IT practitioner?
   • What is the status of research in the field?
   • What standards exist in the field?
   • What important models are used in the field?
• What adjectives describe the characteristics of the field (e.g., relatively new but growing, results-oriented, eclectic, systems-oriented) and why?

c. State a concrete example of a performance need where the intervention would be primarily instructional, describe a possible intervention, and explain why this type of intervention is appropriate.

d. State and describe the process you believe should be followed when creating an instructional intervention.

3. Prescriptive Principles

a. State a prescriptive principle that should guide the action of a performance technologist.

b. Explain why the principle stated in question 3a is valid and necessary to the practice of performance technology.

c. Generate a concrete example of an application of the principle described in questions 3a and 3b.
Appendix D – Considerations for Answering Exam Questions

Once you’ve reviewed the questions and assembled your sources, you can draft your answers to the questions. The key here is that this is an opportunity to demonstrate your ability to communicate effectively (IPT learning goal #8) and to demonstrate the breadth and depth of your IPT-related knowledge and skills. With this in mind, here are some suggestions for preparing your answers to each of the exam questions. These guidelines are intended to give you things to think about rather than “rules” that you must follow. Ultimately, you must decide how you want to answer each question based on your experience and understanding of IPT.

Section A – Published Questions

1) Performance Technology

a. Define Performance Technology (PT) in 25 words or less. Then explain your definition.

Your faculty examiners will be looking for what some people refer to as the “elevator definition” – what you might say to quickly explain what PT is to somebody with no background whatsoever in this field. Why is this important? Because most people you work with will not be familiar with PT jargon and, to be successful, it will be important to communicate your ideas clearly and concisely.

A word of caution: DO NOT use the words human, performance, and/or technology in your definition. Why? It is bad practice to define a word using that word. For example, if someone asked you to define apple pie, telling them that it is “a pie made with apples” doesn’t really help them to understand what an apple pie is, does it?

To help you think about what you might want to include in your definition, here is a table of definitions taken from the HPT Handbook (3rd ed.). Most of them are more technical than you will want your definition to be, but they may help you to think about the ideas that you want to include in your definition and explanation.

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Definition</th>
<th>Key Terms</th>
</tr>
</thead>
</table>
| Gilbert (1978)  | Human competence is a function of worthy performance (W), which is a function of the ratio of valuable accomplishments (A) to costly behavior (B). | • Accomplishment  
|                 |                                                                                                      | • Behavior                      
|                 |                                                                                                      | • Competence                    |
| Ainsworth (1979)| A cornerstone of performance technology is outcome signification--discovering valid, useful performance objectives and stating them in terms that are easily understood. | • Objective                     
|                 |                                                                                                      | • Outcome signification         |
| Stolovitch (1982)| A field of endeavor that seeks to bring about changes to a system in such a way that the system is improved in terms of the achievements is values. | • Achievements                   
|                 |                                                                                                      | • Change                        
|                 |                                                                                                      | • System                        |
| Harless (1986)  | Human performance technology is the process of selection, analysis design, development, implementation, and evaluation of programs to most cost-effectively influence human behavior and accomplishment. | • Accomplishment                 
|                 |                                                                                                      | • Behavior                      
|                 |                                                                                                      | • Cost effective                
<p>|                 |                                                                                                      | • Process                       |</p>
<table>
<thead>
<tr>
<th>Source</th>
<th>Definition</th>
<th>Key Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSPI, via Coscarelli (1988)</td>
<td>A set of methods and processes for solving problems—or realizing opportunities—related to the performance of people. It may be applied to individuals, small groups or large organizations.</td>
<td>Processes, Realizing opportunities, Solving problems</td>
</tr>
<tr>
<td>Langdon (1991)</td>
<td>Systematic application of identifying that a need exists to establish, maintain, extinguish, or improve performance in an individual or organization; defining the need; identifying, implementing, and networking appropriate interventions; and validating that the results are true improvements.</td>
<td>Establish, Extinguish, Improve, Maintain, Systematic</td>
</tr>
<tr>
<td>Stolovitch and Keeps (1992)</td>
<td>The application of what is known about human and organizational behavior to enhance accomplishments, economically and effectively, in ways that are valued within the work setting. Thus HPT is a field of endeavor that seeks to bring about changes to a system, in such a way that the system is improved in terms of the achievement it values.</td>
<td>Accomplishments, Change to a system, Human and organizational behavior</td>
</tr>
<tr>
<td>Rothwell (1996)</td>
<td>Human Performance Enhancement (HPE) is the field focused on systematically and holistically improving present and future work results achieved by people in organizational settings.</td>
<td>Holistically, Present and future work, Systematically</td>
</tr>
<tr>
<td>O'Driscoll (1999)</td>
<td>Systems thinking applied to human resource activities. (1) Systemic, (2) systematic, (3) grounded in scientifically derived theories and the best empirical evidence available, (4) open to all means, methods, and media, and (5) focused on achievement that human performers and the system value.</td>
<td>Achievement, Derived theories, Grounded in science, Systems thinking, System value</td>
</tr>
<tr>
<td>Van Tiem, Moseley, and Dessinger (2004)</td>
<td>The systematic process of linking business goals and strategies with the workforce responsible for achieving goals. Moreover, performance technology practitioners study and design processes that bring about increased performance in the workplace using a common methodology to understand, inspire, and improve. And finally, performance technology systematically analyzes performance problems and their underlying causes and describes exemplary performance.</td>
<td>Achieving goals, Analyzes, Common methodology, Design processes, Study, Success indicators, Systematic process</td>
</tr>
<tr>
<td>ISPI (2005)</td>
<td>A systematic approach to improving productivity and competence, uses a set of methods and procedures--and a strategy for solving problems--for realizing opportunities related to the performance of people. More specific, it is a process of selection, analysis, design, development, implementation, and evaluation of programs to most cost-effectively influence human behavior and accomplishment. It is a systematic combination of three fundamental processes: performance analysis, cause analysis, and intervention selection, and can be applied to individuals, small groups, and large organizations.</td>
<td>Accomplishment, Competence, Cost effective, Process, Realizing Opportunities, Solving problems, Systematic</td>
</tr>
</tbody>
</table>

(Pershing, 2006, Table 1.1, pp. 7-9)

Once you have a draft definition, you might find it helpful to run it past a few people. Do they understand it? What terms do you need to explain? Revise your definition until you feel comfortable that it works for you. Finally, count the number of words to make sure that you have 25 or less and jot down the ideas that you want to elaborate during your exam.

IPT Comprehensive Exam Guidelines version 1.3 (rev. July 2010). These guidelines are subject to change without notice.
b. Describe performance technology as a field. Your response must include:

- **Goals and directions of the field**
  
  Your answer should describe what the overall goal of PT is (what we’re trying to achieve) and where you think that the field is going (what issues people are writing and talking about at conferences, in professional magazines, networking groups, blogs, etc.). Be sure that you can identify sources that support your perspective. In this, and every response, your faculty examiners will be looking for your informed opinion on the question. This means that they want your thoughts and ideas about the issues, supported by ideas, models and theories from other thinkers. It is not enough to just state facts or truisms. You need to show that there is agreement (or disagreement) within the field around these ideas.

- **Historical foundation (where did it come from)**
  
  Your answer should describe the evolution of PT. When did it emerge and why? What was the reason for the paradigm shift from IT to PT and how has PT evolved since it first emerged? You should structure your answer so that it highlights your understanding of the origins of the field and the implications of those origins for current practice.

In thinking about your answer to this question it may be helpful to think about what we mean by a paradigm shift. Professor Eisley, a former IPT Department Chair, defines a paradigm shift as, "...the adoption of a totally new mental map of reality" (Eisley, 2002). According to him, these shifts are important because they precipitate significant advances in the field. Eisley (2002) defined four paradigms in IPT:

1. **Curriculum** which "...holds that people can be prepared for their work by simply giving them information or knowledge by means of instruction." The goal of this paradigm is to dump as much relevant information into the brains of performers as quickly as possible.

   *Robert Mager is credited as the primary force in popularizing the next paradigm, although behaviorists such as Skinner and the interest in social sciences and the implications of behavioral psychology certainly played an important role.*

2. **Instructional** this paradigm is also primarily concerned with preparing people for work, but its focus is on behavior rather than knowledge. The definition of behavioral objectives is critical, and instructional design models abound. These models form the basis of what we call "instructional technology."

   *Thomas Gilbert is the father of the next paradigm. His book In Human Competence: Engineering Worthy Performance (1978) highlighted the need to be concerned about the outcomes of behavior. In his view behavior was important but what really matters is worthy accomplishment!*

3. **Performance** this paradigm is concerned with the outcomes of behavior - performance or accomplishment.

   *While we have not yet made the shift to the next paradigm, writers such as Roger Kaufman in his book Strategic Planning Plus are calling attention to the need for another emphasis. Gilbert suggested this in his term "worthy performance" but this was largely overlooked.*
4. **Legacy** whose "...focus is on something higher or more comprehensive and enduring than accomplishment." The goal of this paradigm is to create a "lasting contribution to the greater good."

Why do paradigm shifts occur? They occur because, over time, it becomes clear that an earlier paradigm is not entirely comprehensive. Nonetheless, each paradigm has contributed valuable tools and insights that are useful both while that paradigm is dominant and within succeeding paradigms. So think about what prompted the shift from an emphasis on behavior to an emphasis on performance. Which elements of previous paradigms have we carried with us and which have fallen aside? How is our practice influenced by these paradigms?

As with the other questions, your answer will form the basis of the follow-on discussion with your faculty examiners. They may ask you to describe:

- whose work has most influenced you, or
- which models you have used, or
- a timeline of events from the late 1800’s to the present,
- or something completely different.

To help you gather your thoughts around this question and potential follow-on questions, this table provides an overview of each time period and lists some of the influential theorists for each time period. You do not need to mention all of these theorists. You may even have different contributors that you would include. The timeline that you created in IPT536 will help you to flesh out your description of the key people and events for each time period. For each person, you be sure that you can describe:

- Who s/he is.
- Approximately when s/he did their work.
- What model or theories s/he developed.
- What that model or theory contributed to the field.
- What/who s/he was influenced by.
- How you see his/her work reflected in the work of others or in the field as a whole.
- Whether or not you have used the model and what its strengths or weaknesses are.

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Description (note that the paradigms are described slightly differently here. Different authors have different perspectives on the field and so define them differently. Think about which characterization resonates most strongly for you.)</th>
<th>People</th>
</tr>
</thead>
</table>

IPT Comprehensive Exam Guidelines version 1.3 (rev. July 2010). These guidelines are subject to change without notice.
<table>
<thead>
<tr>
<th>Period</th>
<th>Big Picture View</th>
<th>Dominant Paradigm</th>
<th>Paradigm Shift</th>
</tr>
</thead>
<tbody>
<tr>
<td>Late 1800's to 1919</td>
<td>During the period between the late 1800s until just before the 1920s, the United States was dominated by immigration and urbanization. World War I also took place from 1914 to 1918. Sharon Shrock refers to this period as &quot;Birth of an Empirical Knowledge Base for Education.&quot;</td>
<td>The ideas about learning at that time were quite different from what they are today. The dominant paradigm was &quot;Mind as Muscle&quot;; i.e., the mind consists of faculties in need of exercise. There was no precise and defined research methodology to determine how learning takes place. Instead, ideas about learning were formulated through <em>Introspection</em>, in which people were asked to look inside their minds and describe what they were thinking. Even after such thoughts were collected, there was no systematic examination of the outcomes; religious beliefs at that time claimed that a &quot;science of the mind&quot; would call into question the gift from God. The basic idea that drove school curricula at that time was the &quot;Mental Discipline Perspective,&quot; which maintained that courses like math, chemistry, and Latin disciplined the mind and improved thinking (i.e., such courses exercised the mind muscle); such exercise was thought to automatically provide the &quot;equipment&quot; necessary to function in the workplace.</td>
<td>During this time period, however, a shift was beginning to take place from 'mind as muscle' which needs exercise to an empirical (i.e., data-based) knowledge base. This is a more objective, as opposed to subjective, approach to the study of learning.</td>
</tr>
<tr>
<td>1920's</td>
<td>The &quot;Roaring 20s&quot; included prohibition, and the passage of the 19th amendment (women's right to vote). Sharon Shrock refers to this as the &quot;Objectives&quot; period.</td>
<td>As a result of the paradigm shift in the previous decade to a more objective approach to the study of learning, behaviorism/objectivism came into vogue during the 20s. In addition, the novel idea that what was taught in school ought to prepare students for work (i.e., the matching of societal needs to public education) came to the forefront.</td>
<td></td>
</tr>
</tbody>
</table>
| 1930's | The Great Depression decreased funds for research and educational experimentation; Progressive Movement (student-initiated activities). Sharon Shrock refers to this as the "Behavioral Objectives and Formative Evaluation" period. | Behaviorism | Ralph Tyler  
Rensis Likert |
| 1940's | World War II took place during this time period. Sharon Shrock refers to this as the "Instructional Media and Research and Development" period. | Behaviorism | Abraham Maslow  
Kurt Lewin  
Vannevar Bush  
Edgar Dale |
| 1950's | Baby Boom and Sputnik. Shrock entitles this period as "Programmed Instruction and Task Analysis" | Behaviorism | Malcolm Knowles  
David McClelland  
Jean Piaget  
Benjamin Bloom  
Donald Kirkpatrick  
Burrhus Frederic Skinner |
<table>
<thead>
<tr>
<th>Decade</th>
<th>Big Picture</th>
<th>Dominant Paradigm</th>
<th>Important People</th>
</tr>
</thead>
</table>
| 1960’s | Hippie Movement (free love), Kennedy assassination, Vietnam War, Civil Rights Movement | In the late 50s into the 60s, there was a shift from behaviorism to cognitivism; the emphasis was then on mental processing rather than observable behavior. The focus of teaching/training thus became assisting learners in structuring information in memory in an organized and meaningful manner. Systems theory was also beginning to emerge at about this time. | Atkinson & Shifrin (CIP Model)  
David Ausubel  
Douglas McGregor  
Robert Mager  
Jerome Bruner  
Robert Gagné  
Michael Scriven  
Frederick Herzberg |
| 1970’s | Energy Crisis, Watergate. Sharon Shrock refers to this period as a time of “ID Models and Maturation.” | Cognitivism | Roger Kaufman  
Joe Harless  
Walter Dick & Lou Carey  
Thomas Gilbert  
Lev Vygotsky (although his work was completed much earlier, it wasn’t introduced in the U.S. until this time period) |
| 1980’s | Ecology boom, OPEC, recession, the Cold War, the Berlin Wall comes down; Sharon Shrock refers to this decade as “Microcomputers and Performance Technology,” which brought about e-learning and CBT, as well as ISD models. | Constructivism and situated cognition emerge toward the end of this decade. | John Keller  
Richard Clark  
Roger Kaufman |
| 1990’s | dot.com boom; prosperity | Constructivism, situated cognition, and brain-based learning all take off in a big way. | Tim Berners-Lee  
Robert Kozma  
Marc Rosenberg |
| 2000’s | The information for the 2000s is still being written. What would you write for:  
- The Big Picture  
- Dominant Paradigm  
- Important People | Who do you see as the key contributors? | |

- **Names and contributions of at least four prominent figures associated with the field of PT (these might include leaders, practitioners, researchers, writers, proponents, and/or creators of theories or model).**

These may or may not be the same people that you included in your description of the historical evolution of the field. Just as before, you should ensure that you can describe:  
- Who they are  
- Approximately when they did their work  
- What model or theories they developed  
- What that model or theory contributed to the field.  
- What/who they were influenced by  
- How you see their work reflected in the work of others or in the field as a whole
• Whether or not you have used the model and what its strengths or weaknesses are.

You may also be asked to address one or more of the following:

• **In what contexts or settings is PT practiced?**

In his foreword to the second edition of the *Handbook of Human Performance Technology*, Mager (1999) tells us that PT is a powerful collection of techniques and approaches intended to solve problems. He goes on to ask, “What kinds of problems?” and answer “All kinds of problems in all kinds of locations for all kinds of people.” Here is just a short sampling of the types of events that might trigger the application of one or more PT interventions, much as a leaky faucet or a decision to build a new house might trigger the need for a master plumber.

"These students have a bad attitude toward school."
"Production is down in the shipping department."
"These managers aren't motivated."
"My team doesn't believe that they've been empowered."
"It's taking too long to get these people up to speed."
"We're having too many accidents."
"These people aren't taking charge of their own health and safety."
"Our little league coach is a bully."
"My dog piddles on the carpet" (p. xii-xiii).

From work to home to school, we can find examples of PT almost anywhere if we stop to think about it.

On the other hand, there are good arguments for limiting the range of our focus with HPT. For example, in his rejoinder to *Saving the World with HPT*, Winiecki (2004) suggests a number of reasons why we might want to narrow our focus.

In developing your answer, you will have to reflect on these issues and draw your own conclusions. In what contexts do you think we practice PT? Are there places where we should not practice PT? Who would agree (or disagree) with your point of view?

• **What are the typical deliverables associated with PT?**

Deliverables can be defined as “something that can be done, especially something that is a realistic expectation” or “something, as merchandise, that is or can be delivered, especially to fulfill a contract” (deliverables, n.d.). In project management, there are essentially two types:

1. Interim or process-related deliverables - temporary results like needs assessments, project plans etc. that are a means to an end (getting us to the intervention)
2. Final or results-oriented - the end results, new processes, new systems, new tools and so forth (the actual intervention or non-intervention)

Looking at it this way, each phase in ISPI’s HPT Model would have deliverables associated with it. What are they? How would you describe them?

• **How would you describe the work of a PT practitioner?**
In answering this question you may want to think about analogies and required skill sets. You should also be prepared to describe a "day in the life" of a performance technologist, if asked. Of course, what a "day in the life" looks like will depend on how many projects the performance technologist is working on and what stage s/he is in. But you should be able to hypothesize and describe what s/he might do at any point in the process. Think about tools or models that s/he might employ at each stage of the PT process, techniques for gathering required information, and so forth.

- **What is the status of research in the field?**
  Most leaders in PT agree that more research is needed if the field is to advance theoretically. In answering this question, think about the research base of PT, how much PT research is there? What other fields do we borrow from? What kind of research predominates – qualitative or quantitative? How does that influence the work that we do and the way we are perceived by people outside the field?

- **What standards exist in the field?**
  To answer this question, consider the standards proposed by the International Society for Performance Improvement (ISPI), a prominent professional association for PT:
  - Focus on outcomes
  - Take a systems view
  - Add value
  - Work in partnership
  - Needs analysis
  - Cause analysis
  - Design
  - Development
  - Implementation
  - Evaluation (ISPI, 2002)
  These are described more fully on the ISPI website: [http://www.ispi.org/uploadedFiles/ISPI_Site/About_ISPI/About/Standards.pdf](http://www.ispi.org/uploadedFiles/ISPI_Site/About_ISPI/About/Standards.pdf)
  What does specifying these standards do for the field? How widely do you think they have been embraced?

  You will also want to think about the merits of certification. What does it mean to become a Certified Performance Technologist (International Society for Performance Improvement) or Certified Professional in Learning and Performance (American Society for Training and Development)? What are the pros and cons of pursuing certification versus certificates versus a degree? What would you recommend? Why?

- **What important models are used in the field?**
  These may or may not be the same models that you included in your description of the major contributors to the field. Regardless of the models that you choose, you should ensure that you can describe:
  - The model
  - When it is used
  - The steps in applying it
  - Who developed it
- Approximately when they developed it
- What/who they were influenced by
- How it is similar or different from other models
- Whether or not you have used the model and what its strengths or weaknesses are.

- What adjectives describe the characteristics of the field (e.g., relatively new but growing, results-oriented, eclectic, systems-oriented) and why?

Adjectives are words that describe or modify a person or thing. For example,
- The tall professor
- The clever student

In identifying adjectives that describe PT, you should ensure that they are consistent with your other responses about the field. Reviewing your answers to this section and then brainstorming adjectives that describe the field as a whole can be an effective way to identify appropriate descriptors.

c. State a concrete example of a performance need where the intervention would be primarily non-instructional, describe a possible intervention, and explain why this type of intervention is appropriate.

Although IT is a part of PT, this question asks you to demonstrate your understanding of the interventions, beyond training, that are available to PT practitioners. So in choosing an example, you will want to ensure that something other than training is required to meet the performance need. When you give your example, you will want to clearly explain:
- The context that your examiners will understand the situation
- The performance need
- Why the non-training intervention you have identified is the best option to meet that need.

d. State and describe the process you believe should be followed when creating a performance intervention.

ISPI’s HPT Model is the most common answer for this question. However, you are not required to describe a published model. Your organization might have a model. Or you might have developed your own model. Whatever model you choose, you should be prepared to describe the elements of the model and suggest additional models that you might draw on in a particular situation. Also, each model has strengths and weaknesses and you should be prepared to describe what those are. You might also be asked to talk about how you might modify the model depending on the particular situation and what trade-offs you might need to make.

2) Instructional Technology

a. Define Instructional Technology (IT) in 25 words or less. Then explain your definition.

Once again your faculty examiners will be looking for a clear and concise definition of the field. And once again you will not want to use instruction or technology in your definition.

To help you think about what you might want to include in your definition, here is a table of definitions. Most of them are more technical than you will want your definition to be, but they may
help you to think about the ideas that you want to include in your definition and explanation.

<table>
<thead>
<tr>
<th>Source</th>
<th>Definition</th>
</tr>
</thead>
</table>
| Shrock (1995)  
*Note:* she calls it 'instructional development' | A self-correcting, systems approach that seeks to apply scientifically derived principles to the planning, design, creation, implementation, and evaluation of effective and efficient instruction. |
| Commission on Instructional Technology (as cited in Gentry, 1995) | 1) The media born of the communications revolution which can be used for instructional purposes alongside the teacher, textbook, and blackboard.  
2) A systematic way of designing, carrying out, and evaluating the total process of learning and teaching in terms of specific objectives, based on research in human learning and communications, and employing a combination of human and nonhuman resources to bring about more effective instruction. |
| Engler (as cited in Gentry, 1995) | 1) IT is defined as hardware--television, motion pictures, audiotapes and discs, textbooks, blackboards, and so on; essentially these are the implements and media of communication; instructional technology is value free.  
2) It is defined as a process by means of which we apply the research findings of the behavioral sciences to the problems of instruction; instructional technology is value free. |
| Saettler (as cited in Gentry, 1995) | Physical Science Concept: The application of physical science and engineering technology, such as motion picture projectors, tape recorders, television, teaching machines (including the computer), for group (or individual) presentation of instructional materials.  
Behavioral Science Concept: Educational practice should be more dependent on the methods of science as developed by behavioral scientists in the broad areas of psychology, anthropology, sociology, and in the more specialized areas of learning, group processes, language and linguistics, communications, administration, cybernetics, perception, and psychometrics. |
| Knezevich & Eye (as cited in Gentry, 1995) | An effort with or without machines, available or utilized, to manipulate the environment of individuals in the hope of generating a change in behavior or other learning outcome. |
| Gentry (1995) | The systemic and systematic application of strategies and techniques derived from behavior and physical sciences concepts and other knowledge to the solution of instructional problems. |
| [http://www.umich.edu/~ed626/define.html](http://www.umich.edu/~ed626/define.html)  
*Note:* they call it 'instructional design' | The systemic and systematic application of strategies and techniques derived from behavioral, cognitive, and constructivist theories to the solution of instructional problems. |
| [http://www.neiu.edu/~dbehrlic/hrd408/glossary.htm#i](http://www.neiu.edu/~dbehrlic/hrd408/glossary.htm#i) | The use of technology (computers, compact disc, interactive media, modem, satellite, teleconferencing, etc.) to support learning |

Once you have a draft definition, you may find it helpful to run it past a few people. Do they understand it? What terms do you need to explain? Revise your definition until you feel comfortable that it works for you. Finally, count the number of words to make sure that you have 25 or less and jot down the ideas that you want to elaborate during your exam.

b. **Describe instructional technology as a field.** Your response must include:

- **Goals and directions of the field**
  
  Your answer should describe what the overall goal of IT is (that is it that we are trying to achieve...
with IT) and where you think that the field is going (what issues are people writing about and about at conferences, in professional magazines, networking groups, blogs, etc.). Be sure that you can identify sources that support your perspective. In this, and every response, your faculty examiners will be looking for your informed opinion on the question. This means that they want your thoughts and ideas about the issues, supported by ideas, models and theories from other thinkers. It is not enough to state facts or truisms. You need to show that there is agreement (or disagreement) within the field around these ideas.

- **Historical foundation (where did it come from)**
  Your answer should describe the evolution of IT. When did it emerge and why? What was the reason for the paradigm shift from IT to PT and how has IT evolved since PT emerged? You should structure your answer so that it highlights your understanding of the origins of the field and the implications of those origins for current practice.

  Refer back to the timeline that you created in IPT536. Who or what contributed to the development of IT? How did they advance/change the focus of IT?

  **Note:** It is perfectly appropriate to identify some contributors as influences in both PT and IT. However, if you do, it will be important to clearly distinguish what they contributed to each field.

- **Names and contributions of at least four prominent figures associated with the field of IT (these might include leaders, practitioners, researchers, writers, proponents, and/or creators of theories or model).**
  Just as with your PT examples, these may or may not be the same people that you included in your description of the historical evolution of the field. Just as in PT, you should ensure that you are able to describe:
  - Who s/he is.
  - Approximately when s/he did their work.
  - What model or theories s/he developed.
  - What that model or theory contributed to the field.
  - What/who s/he was influenced by.
  - How you see his/her work reflected in the work of others or in the field as a whole.
  - Whether or not you have used the model and what its strengths or weaknesses are.

You may also be asked to address one or more of the following:

- **In what contexts or settings is IT practiced?**
  In what contexts do you think that we practice IT? Are there places where we should not practice IT? How is training similar to and different from education? Who would agree (or disagree) with your point of view?

- **What are the typical deliverables associated with IT?**
  As with PT, there are both interim and final products that we deliver to stakeholders. What are they? When do we create them? How do they contribute to the overall success of an IT project or intervention?
• **How would you describe the work of an IT practitioner?**

As in PT, in answering this question you may want to think about analogies and required skill sets. You should also be prepared to describe a “day in the life” of an instructional technologist, if asked. Of course, what a “day in the life” looks like will depend on how many projects the instructional technologist is working on and what stage s/he is in. But you should be able to hypothesize and describe what s/he might do at any given point in the process. Think about tools or models that s/he might employ at each stage of the IT process, techniques for gathering required information, and so forth.

• **What is the status of research in the field?**

How does the level of research in IT compare with the level of research in PT? How much of what we do in the field is grounded in research?

• **What standards exist in the field?**

In answering this question you will want to consider whether or not you feel that the standards proposed by ISPI (http://www.ispi.org/uploadedFiles/ISPI_Site/About_ISPI/About/Standards.pdf) apply equally to IT. Why or why not?

You will also want to think about other standards and certifications from organizations like:

- ASTD http://www.astd.org/content/ASTDcertification/CPLPFactsters.htm
- IBSTPI http://www.ibstpi.org/

And specific certifications like

- CompTIA CTT+ http://certification.comptia.org/ctt/
- Myers Briggs http://www.mbticertification.org/

How do they apply? What do they bring to the field? How should professionals choose?

• **What important models are used in the field?**

These may or may not be the same models that you included in your description of the major contributors to the field. Regardless of the models that you choose, be sure that you are able to describe:

- The model
- When it is used
- The steps in applying it
- Who developed it
- Approximately when they created it
- What/who they were influenced by
- How it is similar or different from other models
- Whether or not you have used the model and what its strengths or weaknesses are.

• **What adjectives describe the characteristics of the field (e.g., relatively new but growing, results-oriented, eclectic, systems-oriented) and why?**
Recall that adjectives are words that describe or modify a person or thing. For example,

- *The easy* question
- *The fast-paced* discussion

Just as in identifying adjectives that describe PT, you should ensure that your IT adjectives are consistent with your other answers about IT. Reviewing your answers to this section and brainstorming adjectives that describe the field as a whole can be an effective way to identify appropriate descriptors.

c. **State a concrete example of a performance need where the intervention would be primarily instructional, describe a possible intervention, and explain why this type of intervention is appropriate.**

In answering this question you want to demonstrate your understanding of how IT differs from PT. So in choosing an example, you will want to ensure that training (not job aids or information) is required to meet the performance need. Obvious examples are when there is a new computer system or completely new work procedures. If you use one of these, do not be surprised if your faculty examiners ask you to suggest another less obvious situation in which training would be required. When you give your example, you will want to clearly explain:
- The context that your examiners will understand the situation
- The performance need
- Why training is the best option to meet that need.

d. **State and describe the process you believe should be followed when creating an instructional intervention.**

The “Dick and Carey” model and the “Bronco instructional design” model are probably the most common responses to this question, but there are other models that are equally appropriate. Your organization might have a model. Or you might have developed your own model. Whatever model you choose, you should be prepared to describe the elements of the model and suggest additional models that you might draw on in a particular situation. Also, each model has strengths and weaknesses and you should be prepared to describe what those are. You might also be asked to talk about how you might modify the model depending on the particular situation and what trade-offs you might need to make.

3) **Prescriptive Principles**

a. **State a prescriptive principle that should guide the action of a performance technologist.**

What is a Prescriptive Principle?

Reigeluth (1983) distinguished between descriptive and prescriptive learning theory, as well as between learning and instructional theory. As indicated earlier, the very point of learning theory is descriptive – to describe the processes by which observed changes in performance are brought about. On the basis of descriptive theory, however, **prescriptive principles** can be derived and empirically tested. For example, the behaviorist principle of reinforcement, “pleasant consequences of any behavior increase the probability of the behavior's reoccurrence,” can be rephrased in terms of a prescription: “To increase the occurrence of some desired behavior, reward it” (as cited in Driscoll, 2000, p. 26).
Basically, then, a prescriptive principle is a "rule of thumb," grounded in theory, that you would use as an instructional/performance technologist when designing an intervention. In other words, it should be a principle that you have learned in this program that would guide your practice in the future.

b. Explain why the principle stated in 3a is valid and necessary to the practice of performance technology.

What makes a prescriptive principle valid? Valid is defined in Webster’s dictionary as "well-grounded on evidence; able to withstand criticism or objection; sound." When applying the term valid to prescriptive principles, you should ask yourself, "Where's the beef?" In other words, what evidence do you have to back up your predictive principle? What theories or models serve as a basis for the principle? Or has a leader in the field said something that leads you to believe that your principle is valid?

What makes a prescriptive principle necessary? Necessary is defined in Webster’s as "cannot do without; essential." The question to ask yourself here is, "What would happen if I didn't follow the stated principle? How might not using it mess things up?"

c. Generate a concrete example of an application of the principle described in questions 3a and 3b.

In choosing an example, you will want to ensure it clearly illustrates the principle that you have described. Ideally, your example should relate to the workplace since that is where IPT is most frequently practiced. When you give your example, you will want to clearly explain:

- The context that your examiners will understand the situation
- The performance need
- Why this principle is important in achieving the performance need.

References


Appendix E – Frequently Asked Questions

Assigning Examiners

Q. How are examiners assigned?

A. Two examiners are randomly assigned to your committee at the beginning of the semester in which the exam will take place. Linda Burnett can tell you who has been assigned when she confirms your exam date, although you should be aware that sometimes examiners swap dates because of schedule conflicts that come up during the semester. Linda Burnett can confirm who your examiners will be when you turn in your submitted questions (2 weeks before your exam).

Pass/Fail Ratio

Q. What is the historical pass/fail ratio for the exam?

A. The IPT department does not keep statistics on the pass/fail ratio for the comprehensive exam. However, students have two chances to complete the exam and there has only been one student (in 20+ years) who did not pass the exam after taking it twice. Most students who do not pass the first time acknowledge that they really had not put enough time into studying and reflecting on what they learned in the program.

Expectations

Q. What are the examiners looking for in our responses? Is there a right answer to each question?

A. There is no formal grading rubric that the examiners use to grade your exam. The examiners want to see that you can provide reasoned answers to the questions and support those answers with credible sources. They want to tell whether you are conversant with the major models and theories of our field and whether you can apply those models and theories to achieve results in the real world.

That said, there are questions about names, elements of models or theories, or when a model was published, that require a "correct" answer. Beyond that, the examiners are looking for you to provide your own answers, in your own words, and to draw on key models and theories to support your answers. What the examiners want to see is that you understand the facts and that you have reflected on them and synthesized them to develop your own understanding of the field. For example, it will not be good enough to simply state an idea like "We must use objectives to guide the development of training." You should be able to explain why. What do objectives enable us to do? How do we know this? What do various models and theories show us? What happens if we don't? And so forth.

Format of the Exam

Q. How is the exam structured? Is there a set amount of time that the examiners spend on each question?

A. Each exam is a unique conversation between you and your examiners. You can count on being asked to answer some or all of the published questions. You should also expect follow-on questions relating to your answers. So be sure that you are prepared to discuss anything that you mention. For example, let's say that you really do not know much about J. B. Watson. You remember that he was a behaviorist but you cannot recall anything else about him. It would not be
prudent to mention him. Why? Because once you mention his name, the examiners will feel free to ask you more about him – for example, what was his contribution to the development of behaviorism, how did his work influence those who followed? It would be much better to mention someone whose work you were more familiar with.

The lead examiner will manage the flow of the conversation so that all of the questions are covered but there is no fixed amount of time that is spent on each question. In fact, not all exams last 90 minutes. An exam might be longer because a student is having difficulty and the examiners are trying to help guide them to the answer. An exam might also be shorter because the student's answers are clear, correct, and concise making it easy for the evaluators to assess the depth and breadth of the student’s knowledge.

**Names and Dates**

**Q.** How important is it to know names and dates?

**A.** Every exam is unique, so it is difficult to be definitive on this one. Some exams have emphasized names and dates and others did not emphasize these at all. Exams follow the format of a conversation, so the emphasis varies based on the direction that the conversation takes. That said, everyone should be able to put major models, theories and thinkers into chronological order by decade and to describe the details of those models and theories.

But it will be important to go beyond names and dates. The examiners will want to assess whether you can apply these models and theories, synthesize them (pull them together into a new whole) and evaluate them (make comparisons and judgments about them).

**No Answer**

**Q.** What if you are unsure of the answer or just don't know something? Can you table something for later or just say that you do not know.

**A.** “I don’t know” is a perfectly acceptable answer (just so long as it is not used too frequently!). No one can be expected to know everything. And sometimes your examiners will continue probing on a topic to find the limits of your understanding. In this case, they are expecting that you will eventually reach the point at which you have to say I don’t know.”

However, when you can, you should demonstrate what you do know and that you are aware that your knowledge is not complete. For example, if you were asked how you might apply a given model to a situation but did not know the model in depth, you could say something like, “I’m not completely versed in that model, but here is what I do know about it and how it is similar to other models.”

You can also ask for a moment to think about something. This is important when you are on the phone so that your examiners do not think that you have become disconnected. And in a similar vein, you are perfectly free to change your mind. It is absolutely acceptable to tell your examiners that after thinking about something further, you realize that your answer was incorrect or incomplete and to amend it.

**Submitted Questions – No Ideas**

**Q.** I do not have any ideas for my submitted questions. I am sure that everyone has covered all of the good topics. How can I find something?
A. Deciding on topics for submitted questions can be stressful. If you can take a step back, though, the idea is actually pretty straightforward. At BSU and in IPT, more generally, we tend to take an eclectic approach to theory. As a field, we do not subscribe to any one point of view. This means that there is plenty of room for discussion about what the right approach to any given situation might be. It is also a relatively new field and we are still working to define our best practices in a changing organizational and global context so, once again, there should be plenty of room for discussion about how we should and should not approach a given situation. So as you look back through your course discussions and readings or look through articles in *Performance Improvement*, look for questions for which there is no definitive answer. What your examiners want to see is that you understand that there is not always one correct answer and that you can present both sides of an issue and come to a reasoned and supported conclusion about an issue. Think about some topics that are of interest to you and do a little reading to see what questions might relate to that topic. People often find the *HPT Handbook* and *Performance Improvement* to be good sources of questions.

In deciding on your questions, it is important to include both IT and PT-related issues so show some breadth in the topics that you address. For example, it NOT a good idea to include three questions about motivation or three questions about evaluation. If you feel strongly about focusing on just IT or PT or on one topic area, you are free to submit your questions and see whether your examiners are willing to proceed. But remember that accepting your questions is entirely up to the examiners.

**Submitted Questions – Format**

Q. Do I have to follow the format described for my submitted questions? I am having trouble stating my issue that way.

A. Occasionally a question is approved that does not follow the specified format. The decision to approve or reject a submitted question is entirely at the discretion of the examiners. As a result, it is safer to format your question as specified. But if you feel strongly that you have met the spirit of the question and want to try submitting a question in a different format, that is entirely up to you. Just make sure that you are prepared to revise it or submit an alternative if it is not approved.

**Submitted Questions – Turnaround time**

Q. Can I submit my questions early? How soon will I hear back from my examiners after I submit my questions?

A. This will depend on the examiners’ schedules. However, you should hear back within a few days in most cases.

**Submitted Questions - Rejected**

Q. What happens if one or more of my submitted questions is rejected?

A. Before your examiners reject a question or questions outright they will usually ask for some elaboration or clarification. They will then give you feedback about what you need to do to revise your question or whether you need to come up with something different.

**Advice from past students**

Q. What have students said about the exam and how to succeed?

A. Here are a few comments from students who have taken the exam in the past.
Student 1
I took the comprehensive exam in Boise in-person because it takes less than 3 hours to get there by car. My experience might be different than what you may experience over the phone with the examiners, but I do not believe it will differ much. The exam or interview began at 1:30 pm and took exactly one and a half hours.

I began with Instructional Technology and it took up the bulk of the discussion time (50 minutes). First, I told them my definition (25 words or less), then they let me discuss key terms of my definition and why I chose to use them. Next, we discussed the field of Instructional Technology including prominent figures in the field. I had a short response on the field of Instructional Technology prepared and at the end of my response, I listed the four prominent figures that I was prepared to discuss. My prominent figures were Benjamin Bloom, Robert Gagné, John Keller, and Donald Kirkpatrick. The examiners asked me questions about each one of them individually and allowed me plenty of opportunity to discuss them. The questions they asked were short and direct. For example, What was important about John Keller’s work in regards to Instructional Technology? or after discussing Benjamin Bloom and Robert Gagné they asked, would you say that their theories cover similar or different areas of the field of Instructional Technology and why? Then, we continued on with a concrete example of instructional intervention and they asked what I thought was the process of Instructional Technology.

Performance Technology followed the same format (30 minutes). My prominent figures were Joe Harless, Robert Mager, Thomas Gilbert, and Roger Kaufman. Thomas Gilbert will be discussed whether he is one of your four or not. Prescriptive principle statement took only 2-3 minutes and there was not a lot of discussion about it. The questions that I submitted were the last things discussed and the examiners chose to discuss the first question on my list. This discussion was short and only took 7-8 minutes.

After the exam, I was asked to step outside. The examiners deliberated for around 10 minutes and I was asked to come back inside and they told me congratulations, I passed. They asked a few questions about my future plans and recommended some things for me to look into in regards to some of the IPT interests I had discussed during the exam.

A few recommendations from my experience:

- Know the published questions. They will be covered. I wish I would have spent a bit more time reviewing what my responses were going to be. I had my responses written down in my notes, but the discussion does not lend itself to being able to find answers on your paper.
- Know the prominent figures you have chosen. Be able to tell what models or theories they are known for, how it helped the field, and how to use them (when to use them during the IPT process).
- Have concrete examples ready or in mind for all models that you discuss, as well as the instructional and non-instructional interventions. Many of the questions from my examiners during discussion were questions asking about a specific example that the model or theory I just discussed could be used. They want to make sure you can apply the knowledge you have gained from the program.
- My examiners explained at the beginning of the exam that they wanted to make sure that I could, “walk the walk and talk the talk of an IPT professional.” Brush up on terms and practice using them in the answers that you are prepared to give to questions during the exam.
• One more thing, which isn't too big of a deal, but practice up on pronunciations of prominent figures in IPT. Robert Gagné is a French name and pronounced (gone-YAY). This is something that we miss sometimes being online only folks.

Student 2
You should definitely know that if you say anything, use a term, person's name, model, adjective - be sure you know everything possible relating to it. For example, if you mention that you like Kirkpatrick's four-level evaluation, know who influenced him and the model, what makes it different to others, when it came to be, what was happening around that time, others working on similar models, everything. The key is to know everything about what you know about what you know.

My examiners unlike others did not go through each question; they focused on my models and theorists. We did discuss my perspective principle and we had a little going back and forth about my defense/support of it as well as about my example of a non-instructional intervention. You have to be able to persuade and argue your side.

In the end, take your time answering the questions, the examiners understand that we are a tad bit, no hysterically nervous and have a glass of water next to you. I stood up and moved around using my speakerphone. Walking around helped me keep my stress down and kinda felt empowering.

Student 3
I was incredibly nervous before but not during the exam. I didn't feel like I was answering a list of questions; it was a conversation. They understand that you are nervous and didn't seem to mind that I referred to my 'cheat sheets' often. I read Yonnie's book [Foundations of Instructional and Performance Technology] a few days before the exam and I thought it was a good review. For my exam I chose to start with IT first because I thought it would be easier to go "in order". It's easier to talk about PT and how it came to be when you can refer to the conversations and statements that you just shared earlier in the exam.

My exam covered the following material:

Definition of IT and why I chose the words I did
4 people for IT and why they are important to me (I had one question about Gagne...but I can't remember it now)
My concrete IT example

Definition of PT and why I chose the words I did
4 people for PT and why they are important to me (I was asked what Taylor and Gilbert had in common)
My concrete PT example

We did talk about the prescriptive principle but it was very brief. I mentioned the '5 Whys' and shared an example of when to use it.

Then we discussed one of my submitted questions (about when to use Web 2.0 tools for instruction). I had to define Web 2.0, strengths and weaknesses, and examples of use. I mentioned a few people and reports but most of the material and thoughts were my own.
We talked for a few minutes... very casual How are you kind of stuff and I started to feel better.... Then my examiner when over the rules..... basically just saying that they would like this to be a conversation, they don't want me to just read an answer, if they cut my off..that it is a good thing because they have heard enough....

We started with PT (my request) and spent a good 10 to 15 minutes on my definition and explaining it. As student 2 mentioned, my examiners did not go down the list of questions... one thing just kind of builds off the next thing. I was asked to apply my definition to an example so that took us into my 4 prominent figures, but again... it was totally like a discussion, discussing the models and who and how.... I really didn't have a chance to go through my paperwork (I had it on my computer screen). But I was very comfortable with the discussion. It is ok to say... I'm not sure what you meant by that question? Stuff like that. They are there to help you and they just want to understand your conversation.

They really liked my PT definition, because it was so simple. I had two options in front of me and I went with the really simple one..... I'm glad I did. Mine was: The profession of helping people work to meet or exceed their goals by looking at all the different aspects of their job. (22 words). They did ask why I didn't use systematic and systemic in my definition.... and I explained then it wouldn't be as simple anymore if I did use those words.

They did jump down to my example for non-instructional... and we spent most of the time on that. My one example, we discussed how to apply pretty much all the different possibilities an PT practitioner could use. I kind of surprised myself by being able to apply it and at this point I am feeling very comfortable with everything. They were prompting at one point for me to bring up the ADDIE Model... which I completely missed what they were looking for.... They just kept asking the leading questions until I finally got around to what they were looking for....

Then we did basically did the same format with IT.... We discussed the definition... moved down to my example -- they actually didn't want me to use my prepared example... it had to do with a new software.. and training on it... and they kind of put me on the spot and said.. everyone uses software for a training.. can you come up with something else..... that kind of threw me.. but I came up with something.

We then finished out the exam with the principle and the submitted question...they picked my first question.... It took exactly an hour and 1/2. We were done at 3:00pm. As student 2 mentioned...
keep studying, keep reviewing, and know your stuff...but... remember that you have been studying this for a while and you might not think that you know your stuff...but you really do. The actual exam itself was fun...wow did I really say that.... :-)

Student 5

- Fluency... Though I did OK, in retrospect - I stressed myself out enough to lose focus on things I knew very readily! We're so used to communicating this program via LOTUS - I think we may be missing out on the importance of developing fluency through applicable verbal exchange... (at least for me).
- What matters is knowing your models and theorists - and how you specifically applied these in your experimental or live settings... and being somewhat fluent in articulating models and theories to explain your choices.
- Don't forget how we assess problems - I think I locked up on a question that I could have easily expanded on just by talking about what I did for needs analysis that lead to my "intuitive" decisions.
- The exam is like a conversation - but it is an exam nevertheless... the examiners do a really good job trying to put you at ease - at the end, we had a brief discussion on strengths and weaknesses; it might help you to know what your weaknesses are going into the exam and work from your strengths.