Encouraging Intellectual Growth

▷ Understanding how learners develop the ability to make meaning from a wide variety of information sources

▷ Interpreting how learners' intellectual development influences the way they think about authority and evidence

▷ Creating a safe environment for reference interactions that support intellectual development

▷ Designing instruction sessions appropriate for learners' intellectual development phases

▷ Planning outreach activities that shift learners' view of authority and evidence

HAVE YOU EVER HAD A STUDENT come to the reference desk asking for help finding scholarly articles, only to realize the student has no clear understanding of what these articles are or why the instructor was asking for them? Have you ever observed students selecting the top two or three results in a search results list with no consideration for the quality or authority of those sources? Or have you ever had a student in a reference consultation ask you for advice about how to work with their advisors or major professors?

At the heart of each of those questions is an interpretation about how learners make meaning from different types of evidence and perceive authority in a variety of new contexts. Librarians constantly deal with issues related to authority and meaning-making in their work. Depending on what kind of library work you do, the idea of authority may be understood in a variety of ways. For example, catalogers are highly familiar with the concept of authority control. Much of their work involves standardizing the way information is presented so that searchers can consistently and predictably find information.

Because of their expertise, catalogers can provide authority for information that was previously unordered. Instruction librarians may think about authority in a somewhat different way. For example, the ACRL Information Literacy Framework emphasizes the importance of recognizing how authority is viewed depending on different contexts in the frame "authority is constructed and contextual" (ACRL 2016). In practice, instruction librarians often use this concept to teach students to examine the differences between peer-reviewed and popular literature. One distinguishing factor often emphasized about these two source types is that the editing process used and the authors' expertise signal how much authority the source has. Instruction librarians work to make those distinctions clear so that students are able to classify similar sources in new contexts, while recognizing that the line between source types can be fuzzy and that there isn't always an absolute right answer.

Depending on your past library experiences, you may have experienced authority in both of those contexts, as well as in many other aspects of your personal and professional life. However, once you learned how to make meaning in a new context, you likely stopped thinking explicitly about how those connections were made. For example, with repeated experience, evaluating the difference between a peer-reviewed and a popular article is a process your brain can handle in a few seconds. Your mind automatically sorts out how authority was determined for the different types of information. Moreover, if you encounter a slightly different format of the scholarly article, for example, an HTML version of the article rather than a printed article in a bound journal, you would be able to transfer your preexisting understanding about scholarly articles so that you could still determine the authority of the article despite the difference in format. Or if you were asked to choose the best source for presenting to a specific audience, you would likely be able to adjust and understand that a less scholarly source may be more appropriate. But for novices these activities can be hurdles that require significant thought before the learner can determine how to best use the information presented.

The ability to understand where authority comes from, when to rely on intuition, and when to adapt your sense of authority to a new situation are all intellectual processes that start to happen reflexively. However, an understanding of authority and how to make meaning when confronted with increasingly complex questions doesn't just happen automatically at birth. For most people, this changes over time. This chapter will discuss a theory that describes how people's understanding of meaning-making from different sources of evidence and authority change as their experiences impact how they think. This chapter will also discuss how librarians can use this theory to create a broad range of learning experiences.

Cognitive-Structural Theories

The area of student development theory that examines how students think, reason, and make meaning from a diverse array of information, especially as the questions become more complicated, is called Cognitive-Structural Theory. There are several types of cognitive-structural theories. Some focus on moral or faith development, and others focus on intellectual development. All of these theories have different stages that learners progress through at different rates (Long 2012). Most of these theories describe developmental characteristics of upper high school and traditional college-aged students; therefore, the examples in this chapter will primarily focus on that same learner group. However,

note that cognitive-structural development continues throughout the life-span and that different people develop at different rates. This chapter will focus on one of the first and most well known intellectual development theories. Chapters 3 and 4 will continue with a focus on several more recent intellectual development theories.

For librarians who teach information literacy concepts, work with students on reference questions, or plan outreach events, developing learners' ability to think, reason, and make meaning in order to find and use information is a regular part of daily practice. Yet because few librarians have received training in student development theories, you may not have a name for the gaps you see in learners' information skills, and as a result it can be easy to either blame your teaching ability or the students' ability to learn when problems arise. Recognizing that the developmental stage at which learners are located impacts the way they make meaning from evidence and understand authority can help shift the approaches used in reference consultations, in the classroom, and in outreach activities to better align with students' stages and promote intellectual growth.

The History of Perry's Intellectual and Ethical Development Theory

One of the most prominent cognitive-structural theories is William Perry's Intellectual and Ethical Development Theory. This theory has spurred other researchers to develop a variety of theories about how students develop their understanding of the world, particularly as they encounter information in conflict with ideas they previously held. Because of the importance of Perry's theory in the field of student development theories, the rest of this chapter will focus on the key principles of this theory, particularly as they relate to the library environment.

As with many student development theories, Perry's Intellectual and Ethical Development Theory grew out of his direct interactions with students. While working at Harvard University as a counselor in the 1950s and 1960s, Perry and several colleagues performed a longitudinal study with male students at Harvard and a few female students at Radcliffe. He and his colleagues interviewed these students at the end of each year for four years and asked them broad, open-ended questions about their experiences over the course of the past year (Perry 1970). Perry tried to interview a diverse range of students. At a predominantly male, almost entirely white institution as was Harvard at the time, diversity in this context meant his sample was made up of students who demonstrated different ways of reacting to intellectual challenges with a range of possible solutions. At first, Perry thought these differences were based on personality traits. But after analyzing the transcripts of the student interviews, Perry and his colleagues began to see patterns in students' responses that indicated the differences were actually related to developmental stages rather than personality.

Perry's theory posits that when faced with new information, a student will take in that information and make meaning from it in different ways depending on the student's intellectual and ethical development stage. Perry and his colleagues came up with a nine-position theory to walk through all of these stages of intellectual and ethical development. The initial positions primarily focused on intellectual development, and only the last few positions discussed ethical development.

One important feature of Perry's theory that distinguishes it from other cognitive-structural theories is the emphasis on how individuals interpret where authority comes from. Perry (1970) defined authority in two ways. Authority (with a capital *A*) indicates a sense of Authority as a source of absolute, right answers; the second definition

of authority (with a lowercase *a*) focuses on a more relative source of authority achieved through social interactions. Both types of authority play a role in the three phases of intellectual development. Ways that librarians can help learners understand authority (with a lowercase *a*) will be emphasized throughout the rest of this chapter.

This discussion of Perry's theory will simplify Perry's model and collapse those nine positions down to three phases that focus solely on intellectual development. This modification will make the theory easier to understand and then translate to the library context.

Three Phases of Intellectual Development

The three combined phases of the Intellectual and Ethical Development Theory are *dualism*, *multiplicity*, and *relativism* (see the box below). Learners in the dualism phase believe that right answers exist for everything, and there are specific authorities who have those right answers (Evans et al. 2010; Perry 1970; Perry 1997). While in the dualism phase, learners focus on what *they*—the person in authority, such as the teacher—want; students then work to try to give the teacher exactly that type of content or performance (Perry 1997, 60). The dualism phase usually starts in childhood and can extend through early college (see figure 2.1).
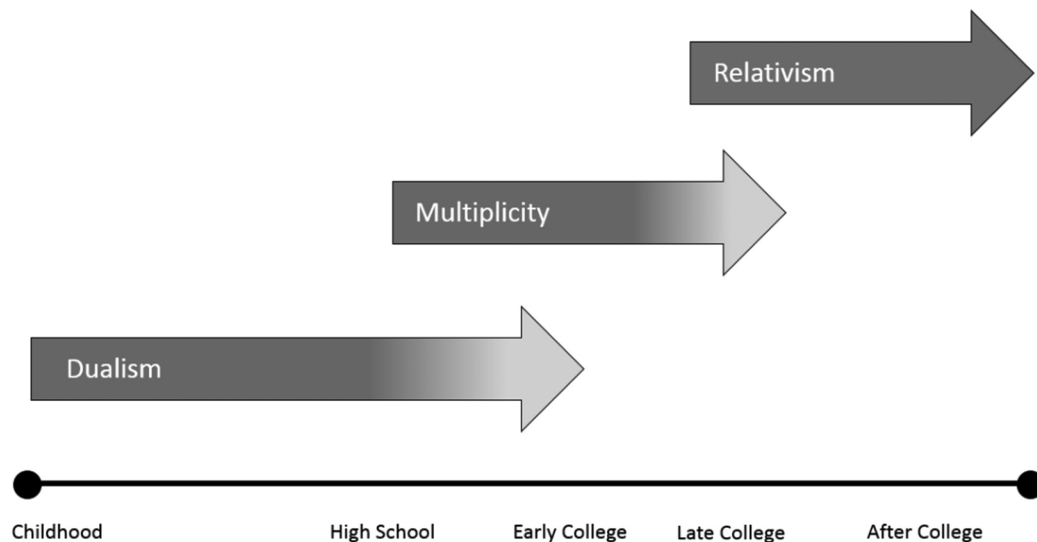

Figure 2.1. Intellectual development phases by typical age range

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INTELLECTUAL DEVELOPMENT PHASES

- **Dualism.** Sees the world as black and white; right answers exist for everything, and authorities possess those right answers.
- **Multiplicity.** There are many answers, and anyone can be an authority, one's self included; everyone is entitled to their own opinion; all opinions, including their own, count equally.
- **Relativism.** Not all opinions are equal; context must be considered to make decisions and determine where authority comes from.

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Learners in the multiplicity phase begin to think more independently. During the multiplicity phase, learners do a nearly 180 degree turn from the dualism phase and see authority as coming from almost everywhere. Not only do they begin to value themselves as a potential authority with important opinions and viewpoints to share, but also they think everyone else's viewpoint is equally valid. As a result, peers become increasingly valuable sources of information (Evans et al. 2010). When thinking through school assignments, students in the multiplicity phase shift to recognizing there is a particular way the person in authority, that is, the teacher, wants students to do the assignment. Students realize there are specific ways of communicating content that are important to follow and that it's not enough just to present the right content (Perry 1997). The multiplicity phase can start in high school and can last through the later years of college (Perry 1997).

Students who reach the relativism phase believe context needs to be considered when interpreting knowledge. They feel that not all opinions are created equal, and therefore, equal weight shouldn't be given to all ideas, especially to those ideas that aren't well supported. Evidence is required to convince students in the relativism phase that a particular idea or individual should be given authority (Evans et al. 2010). The relativism phase can begin in late college but often doesn't begin until after students have finished college (Perry 1997). See the Information Ethics Workshop Scenario for a real-life example where a librarian grapples with how to work with students at one of these intellectual development phases.

INFORMATION ETHICS WORKSHOP SCENARIO

To better understand these intellectual development phases in a real-world context, picture yourself as the librarian in the following scenario. Ask yourself what intellectual development stage the students are in and how that phase may impact their behaviors.

You are teaching a three-session workshop series on information ethics to first and second-year honors college students as part of their Introduction to Research series. For the first session, you plan a variety of active learning techniques to engage students. However, you notice that while most students listen fairly attentively during the lecture component of your presentation, several of the students don't seem willing to participate in activities with their classmates. When they were asked to compare past experiences with their neighbors, some of these students are obviously checking their phones and are not listening to their peers. At the end of the session, the only questions asked are about the mechanics of the assignment due next week. After the first session, you talk to the course instructor and find out she has also observed that some of the students have trouble in other honors classes when asked to partner with students from different majors. These students have indicated they don't see how working with a fellow student with no expertise in their major is worth their time.

While there may be multiple issues going on with the students in this scenario, the students are displaying several signs of dualistic thinking. First, they see authority as coming from the person in charge of the workshop, and they don't value input from their peers. They feel their classmates' input isn't as valuable as the input from the main authority figure. Second, their focus on the assignment mechanics indicates they are interested in getting the answers right and aren't interested in learning what they feel is extraneous information.

Transitioning between Phases

While the phases in the Intellectual Development theory can reveal interesting issues about students' behavior, what Perry was really interested in were the transition points (Perry 1997). The transition points between phases are where growth can happen and where students may be open to new ways of thinking (see figure 2.2). Instructors and librarians can help foster growth at these transition phases. One of the primary ways educators can help students move to a new phase is by including time for reflection and building in guided metacognitive activities.
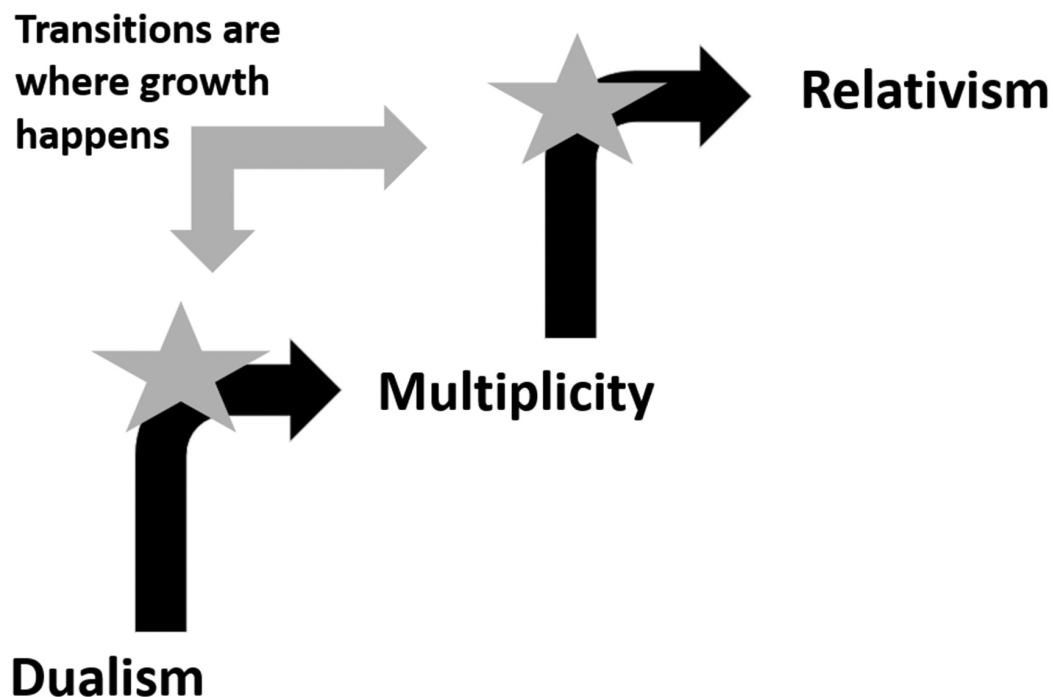

Figure 2.2.   Intellectual development transition points

Transition points can be times that are filled with anxiety. Thinking about the world in a different way can leave some people feeling unmoored and uncertain about where they belong. In addition to feeling anxious, students at transition points may also feel apathetic, cynical, or depressed (Perry 1997). While providing prompts to encourage students to think in new ways is important, providing safe spaces and an empathetic recognition that growth is challenging is an equally important responsibility for instructors and librarians.

Perry's theory focuses on students while they are in college and observes how they transition between stages within an academic context. But transitions can happen in other contexts as well. Situations that present a conflict or a challenge can also encourage growth if support is present to make that transition. Transitional phases can be prompted by travel to another country, by significant interactions with a new partner's family members, or because of a new job. People don't need to attend college to undergo intellectual development, but the conflicts and challenges that students encounter in college are common triggers for intellectual development (Long 2012).

Putting Perry's Intellectual and Ethical Development Theory in Context

Perry's work on intellectual and ethical development has important implications for those of us who support and work with students, particularly in an academic setting. However, some caveats should be noted about Perry's theory. As mentioned earlier, Perry's interviews were done primarily at Harvard with white, male students. Some white, female students were interviewed at Radcliffe, but few of their interviews were used in validating the theory. Not only was Perry's demographic pool extremely restrictive in terms of gender and racial diversity, but also the students who attended Harvard in the mid-twentieth century also represented an extremely narrow geographic and socioeconomic spectrum. Later researchers try to address this lack of diversity in Perry's work and have sought to expand this theory to more diverse contexts (Evans et al. 2010).

Another important factor to keep in mind is that Perry's interviews took place at a particular time in history. When Perry later interviewed a different student cohort in 1970, he found that those students were at different stages as compared to the students he initially interviewed in the 1950s and 1960s. Global events were shaping the way those students interpreted information and authority in very different ways. Perry did note the importance of considering these environmental impacts, but he asserted that while certain phases may happen at different times for different students, overall the Intellectual and Ethical Development Theory still provides relevant insights into the changing way students interpret what is happening in the world around them as they progress through college (Perry 1970).

Applying Intellectual Development Phases to the Library Context

Now that you have an understanding of Perry's intellectual development phases and the importance of the transition points between these phases, it is time to think about how these principles can be applied in library settings. Student affairs professionals use Perry's Intellectual and Ethical Development Theory to design programs such as service learning experiences or writing center workshops focused on plagiarism. Through these programs, student affairs professionals seek to give students the opportunity to stretch their initial beliefs and values (Long 2012). Janice Sauer discusses ways that intellectual development principles can help librarians and asserts that Perry's theory provides librarians with "just the kind of framework necessary for designing a program that will work with the developmental pattern of the undergraduate instead of, as we have so often done in the past, against it" (1995, 145). Before delving into ways to use Perry's theory in the library, it is worth considering a cautionary note from Perry that echoes Sauer's sentiments. When designing programs or instruction based on principles of intellectual development, Perry states, "It's not that we need to 'get' students to develop." Rather, he says we should design our curriculum and pedagogical approaches to "invite, encourage, challenge, and support students in such development" (1997, 79).

Learning more about students and respecting the diverse array of intellectual development phases they represent matches up well with many librarians' ethics of putting the learner first and supporting them in the various ways they learn and develop. This section will focus on how librarians can use lessons from Perry's theory in reference, instruction, and outreach. See the box below to help spark your thinking about additional examples of where you have encountered examples of dualism, multiplicity, or relativism in your library context.

Reference Consultations and Intellectual Development

Interactions with students at the reference desk and in-depth, one-on-one research consultations provide many opportunities for observing students at different stages of intellectual development. Students who come to the reference desk are often hurried and stressed out. They may have tried many alternative routes for addressing their questions before coming to you. In these situations of stress and frustration, students can often reveal much about themselves in a short period of time. Also, because reference interactions are short, often onetime encounters, these interactions can leave librarians feeling as if they haven't done enough to support students (see the Real-Life Reference Example in the box below). This section will look at how librarians who do reference work can interact with students in ways that are appropriate for their intellectual development stage; will offer suggestions for structuring research consultations to help students at transition points; and will discuss the value librarians can provide as safe sources of assistance for all students.

Dualism

Recognizing and respecting the intellectual development stage of your learners helps you present information in a way that encourages learners to be more receptive to that information. Learners at the dualism phase are usually looking for right answers and want you, as an authority figure, either to give them that information or to tell them which sources are authoritative. One way to help learners at this phase is by making sure the information you provide, either verbally or in print, is clear. Learners at the dualism phase are not looking for lengthy descriptions with extraneous information about the history of the source or alternative methods of arriving at the answer. Focus on giving explanations that are brief and to the point.

During the dualism phase, learners also want reassurances that the source they chose or the search tool they used is the best tool. Let students know how you chose the sources and tools you did during a reference interaction, and use language that signals how you determined the authority of the tool or source. For example, a signal phrase can be as simple as saying, "I chose to begin our search in Academic Search Premier because it has a lot of scholarly articles written by researchers on a range of current topics." Noting that this search tool contains scholarly articles is an important cue to the learners. They can use that information to help determine authority when doing another search in the future.

While you may have little control at the reference desk over what sources an instructor requires for the final research project, you can suggest background sources that are more appropriate for the learners' intellectual phase. Authoritative secondary or tertiary sources that compile information in a more digestible format for novice researchers may be more appropriate for students in the dualism phase (Jackson 2008). Sources such as encyclopedias, government websites, or research updates provide the clear authority for learners at this stage without the more complex disciplinary language they may not yet be equipped to evaluate (see table 2.1). While students may not be able to cite sources such as an encyclopedia in their final project, reference librarians can explain the value of beginning their research with these types of sources.

Presenting information in a stage-appropriate way during reference interactions most importantly relies on modeling behaviors that learners can adopt themselves. In summary, some of the ways you can help learners at the dualism stage are by providing

- clear explanations,
- brief directions,

Table 2.1. Suggested source types based on intellectual development phase

PHASE	SUGGESTED SOURCES
Dualism	Encyclopedias or other reference sources Research updates or news Secondary source books (e.g., popular science) Government websites
Multiplicity	Review articles Editorials Blog posts Research updates or news Government and nonprofit websites Primary sources (e.g., from historical disciplines)
Relativism	Original research articles Conference proceedings Government websites Scholarly monographs Primary sources Raw data

- authoritative background source suggestions,
- and signals revealing how authority is determined.

While reference desk interactions are usually brief and rely on quick modeling of search strategies, scheduled one-on-one reference consultations allow librarians to pair search strategy modeling with opportunities for learners to transition to a new intellectual phase. Reflection prompts and questions that encourage learners to consider new ways of thinking help initiate that transition process. Many college-age students are required to find and use peer-reviewed articles as evidence for research-based assignments. Students who are in the dualism phase likely view the authority of peer-reviewed articles in black and white. Up to this point, they may have learned a simplistic version of how the peer-review process works and may believe that peer-reviewed articles are free from bias, and that the information in peer-reviewed articles always provides authoritative evidence. Students may now be ready to learn that peer-reviewed articles are part of a broader scholarly conversation made up of varying viewpoints and a shifting understanding of what constitutes authoritative evidence. Guiding questions in a reference interaction with someone on the edge of the dualism phase could examine the background of the authors from a variety of papers on a similar topic, how these different authors in the same discipline agree and disagree, and whether there are people outside of the scholarly community who are also interested in this topic (see table 2.2). Exploring these questions together in a one-on-one research consultation allows students to consider other sources of authority and that authority may sometimes be situational.

Multiplicity

Learners at the multiplicity phase increasingly rely on their own opinions and ideas as an important source of authority. However, they are becoming open to seeking out opinions and insight from a wider range of sources, including their peers. They are also less inclined

Table 2.2. Research consultation prompts based on intellectual development phases for an example library research scenario

PHASE	LIBRARY RESEARCH CONSULTATION EXAMPLE	TRANSITION PROMPTS
Dualism	A student is looking for facts using peer-reviewed articles for the first part of their research assignment. The student assumes all peer-reviewed articles contain correct information that can be automatically trusted because researchers aren't biased.	• What shared perspectives do the authors have? • What do the authors disagree about? • Why might they disagree? • Besides people in the scholarly community, who else is interested in this topic? • Where could we find information about what other interested parties are saying?
Multiplicity	The second part of the research assignment requires the student to do her own survey of other college students. The student chooses a topic she feels strongly about. The results are quite different than what the student has read in the peer-reviewed literature.	• What do you know about the researchers' academic training and experience? • How do the methods and sample sizes compare among the research studies you are examining? • Do researchers need to include all of their data or background ideas? • How do you think they choose what to include?
Relativism	The third part of the research assignment asks the student to synthesize her own research and research done by others in the discipline and to include an analysis of limitations and future directions the research could take.	• When would it be appropriate to include nonscholarly works in your paper? • When would it be inappropriate to include scholarly works in your paper? • How does peer review or input from others in the field impact a research paper? • How quickly do you think new ideas, theories, or ways of understanding emerge in your field? • How will you decide what data and information to use in your paper? • How has your thinking about this research area changed since you started this project?

to categorize one type of information as qualitatively more valuable or important than another. Students at this phase have had some experience both with college and with doing academic research, and they are beginning to understand that instructors don't just want regurgitated facts but rather want students to interpret and present their information using some of the conventions they have learned in their discipline.

Modeling search strategies at the reference desk is a valuable way to meet learners' needs at the multiplicity phase. Because they are willing to explore other sources of authority, capitalize on that interest and demonstrate a broader range of search tools and source types. Go beyond the basics of a discovery tool or broad scholarly database, and show students in the multiplicity phase subject-specific databases. Or show them scholarly information aggregators such as ScienceBlogs, Research Blogging, or ScienceSeeker to expand their view of where and how scholarly conversations take place. Editorials in scholarly journals can be a valuable source for demonstrating how scholars form their opinions (see table 2.1 for more source suggestions). Learners at the multiplicity phase should have a better understanding of how keywords work and that different audiences may use language differently. Point out subject headings, thesauri, and synonyms to illustrate how experts use language in various ways depending on their audience.

Learners at the multiplicity phase will still appreciate clear, brief explanations, as well as signals that distinguish how authority is conveyed. But there are new approaches you can use when providing reference assistance to learners at the multiplicity phase. In summary, these approaches include

- demonstrating a wider range of search tools, including more discipline-specific tools;
- showing sources that reveal broader scholarly opinions, including blogs and editorials; and
- discussing how keywords change depending on the audience.

Because learners in the multiplicity phase are learning how to rely on themselves for evidence, instructors can build on this reliance by asking students to engage in their own original research activities. However, some confusion may arise when student researchers begin to compare their work to that of other, more experienced researchers. Here are some examples of more in-depth research consultation prompts to encourage learners at the multiplicity phase to transition to new ways of thinking:

- Ask learners to explore how more established researchers gained their expertise.
- Encourage a more nuanced examination of methods and sample sizes so students can compare and contrast their techniques to those of other researchers.
- Ask learners to reflect on what ideas are actually included in a researcher's final report so students can begin to learn how to synthesize ideas into a format acceptable in their disciplinary context (see table 2.2 for more ideas).

Relativism

Learners at the relativism phase should be more confident in their ability to understand when to use different search tools and source types in their own research processes. As these learners are confronted with a new range of sources and data types, they will need to determine how to prioritize and synthesize information from all these sources. Learners at this stage will use the information at their disposal differently depending on the context. For example, when asked to create a presentation for a nonscholarly audience, such as a local nonprofit, they should be able to present information that is engaging and appropriate for that audience. When asked to write a report for an audience of public officials, they should be able to include and cite data and statistics to make a compelling argument.

Reference desk support for learners at the relativism phase will most frequently arise as learners are trying out new tools outside of their typical disciplinary domain. While they may be able to transfer some of their underlying knowledge from their own field about how to choose search tools, how to navigate source types, and how to determine if evidence comes from an authoritative source, they made need some insights into how information is conveyed, organized, and accessed in an unfamiliar context. For example, a food scientist looking for patent information for the first time may need direction on how patent searching works. Or a marine biology student may need some help finding census data to present to policymakers. Helping learners cross disciplinary boundaries and expand their understanding of what constitutes a quality source in an unfamiliar discipline is an important role that librarians can play for learners at the relativism stage (see

table 2.1 for suggested source types). In addition, reference librarians can suggest tools that help researchers determine the value or ranking of journals or articles. These tools include altmetrics, the H-index, and *Journal Citation Reports*. While none of these tools are perfect, they provide researchers with a mechanism for establishing a benchmark for the authority of research or evidence in a field.

In summary, reference practices that support learners at the relativism phase include

- demonstrating search tools and sources from multidisciplinary contexts;
- signaling how different research communities establish authority; and
- suggesting tools for evaluating scholarly impact.

Learners who are at the relativism phase are becoming more comfortable evaluating which source is more authoritative and which sources make more sense depending on the context. Nonetheless, as learners initially enter this phase, practice and explicit reflection are needed to clarify how decisions about prioritizing sources and choosing what information to report are made. Examples of research consultation prompts for learners at this phase include questions about the appropriateness of using either scholarly or nonscholarly sources depending on the learner's disciplinary context. Learners at the relativism phase can also benefit from a discussion about the effectiveness of the peer-review process, how the process of peer-review impacts the speed with which new information is shared in their field, and what some alternatives to the traditional peer-review process might be. Finally, learners at this stage can benefit from working with a librarian who can serve as a neutral sounding board for their reflections about how their thinking has evolved and grown since they started their research project (see table 2.2).

Library as a Safe Space

Libraries are traditionally known for their role as safe, community-gathering spaces. Learners can come to the library and ask a range of questions, including questions that are immediately relevant to library topics and those that range further afield. The range of questions asked reflects learners' view of librarians as relatively safe and neutral information authorities. An analysis of reference desk interactions at an academic library found that 47 percent of the questions were non-research related. When reflecting on their findings, the study authors noted that part of the role of librarians may be to help students learn the new culture of being in college and how to ask for help from authority figures (Grallo, Chalmers, and Baker 2012).

While learners may need more assistance adapting to a new culture during the dualism phase, as learners transition through the intellectual development phases, their need for safe people and spaces to go to for information remains constant. As you observe trends and issues learners are facing, use this opportunity to connect with other stakeholders and communicate with them about these issues. For example, if students are consistently having problems with the campus learning management system (LMS), take the time to pass this information along to the relevant IT group on your campus. Or if you encounter many graduate students who have difficulties navigating the advisor-advisee relationship, talk with your graduate school to see if you can collaborate to create a support system for advisors and advisees.

Librarians often bring a more service-driven, human approach to their work that learners may find lacking in other encounters with city government or campus offices.

One way to build on the idea of librarians as a safe connecting point is through the use of personal librarian programs. Several large academic libraries use personal librarian programs to make an initially intimidating system such as the library feel more approachable. Students can receive e-mails from their personal librarian letting them know about library updates; they can meet with their personal librarian for research help; and their personal librarian can connect them with other campus services. Examples of universities with personal librarian programs include Yale University, the University of Iowa, Drexel University, and the University of North Carolina at Chapel Hill. Librarians may have once sat behind large reference desks that conveyed a certain type of authority, but librarians are now breaking down those walls. By paying attention to their learners' intellectual development phases, librarians can provide even more relevant assistance at the learners' point of need.

Library Instruction and Intellectual Development

Librarians who teach students either as guest lecturers in one-shot sessions or as instructors for term-long classes have more time to observe and determine the intellectual development phases of their students. Instruction librarians also have more opportunities for tailoring an instruction experience that appropriately matches students' intellectual development phases. This section will build on the suggestions given above for reference librarians. Because many of the suggestions for sources to use and ideas for helping learners transition to new phases are the same for reference and instruction librarians, this section will focus on examples of instructional strategies and activities that are appropriate for various learners' intellectual development phases.

Dualism

Learners at the dualism phase are still learning how to navigate the information landscape, particularly in an academic context, and are unlikely to be aware that authorities in a field may hold somewhat different opinions or may approach problems in different ways. Because learners in the dualism phase still categorize information and sources of authority as black and white, these learners will be more inclined to see these academic differences of opinion as a rejection of a theory or idea. Instead, researchers may be trying to make a theory stronger by providing as many diverse perspectives as possible. An example learning objective and assignment for learners in the dualism phase inspired by Rebecca Jackson's (2008) mapping of the intellectual development phases to the ACRL Information Literacy Competency Standards is described next to help prompt your thinking about ways you could meet the needs of your learners.

The example one-shot session in table 2.3 introduces learners to the way scholarly conversations happen by asking them to find an academic debate that is currently underway on a topic the student is interested in and then to summarize the viewpoints represented in that debate. Students may rely on sources such as *Wikipedia*, which includes a "Talk" tab showing the discussion that goes into creating an article. Or they could explore research news sites such as ScienceDaily or EurekAlert! that cover current research topics.

Several key instructional strategies are important for learners in the dualism phase. Just as with reference interactions, clarity is important for these learners. Make sure either paper or web-based versions of the assignment directions are clear and to the point. Another important instructional strategy is to first model the behaviors you want students

Table 2.3. Instructional strategies for library sessions based on intellectual development phase

PHASE	EXAMPLE LEARNING OUTCOME	INSTRUCTIONAL STRATEGIES	ACTIVITIES
Dualism	Identify an academic debate in the student's major in order to write a short summary of an issue that is still developing and is important in their field.	• Provide clarity. • Model behaviors first. • Use preselected examples and discussion prompts. • Include time for individual feedback.	• Use clear directions—verbal and written. • Model how to find topics under debate, include explicit explanations of choices made. • Use the Cephalonian method to prompt students to read statements on different sides of an example topic. • Work individually with all students on their topics to make sure they understand the assignment. • Use the muddiest point paper exercise.
Multiplicity	Find and read several academic and nonacademic sources on the same topic in order to present a comparison of the range of arguments on that topic.	• Students try the activity first. • Model key behaviors second. • Students share in pairs. • Students practice with a preselected example.	• Ask students to work in pairs. First one participant looks for academic sources, and the other looks for nonacademic sources. Debrief with each other on where they looked and then switch roles. • Model reading a source to find the key argument, include explicit explanations of signposts and signal words you noticed within the source. • Have students practice reading assigned example sources to find the key arguments. Document the signal words the authors used. • Do a misconception/preconception check.
Relativism	Find and read several academic and nonacademic sources that include data, and discuss the same topic in order to write a synthesis paper that includes original data on that topic.	• Students try the activity first. • Provide minimal instructor modeling. • Students learn in pairs. • Students learn from each other. • Ask more complex questions about source validity and disciplinary differences.	• Ask students to work in pairs. Assign students example charts with raw data from a scholarly and nonscholarly source. Ask them to report back to the group on a summary of the key data, and share one technique for reading charts. • Model any missing techniques for reading charts. • Students review the charts again in pairs, and report back about what other data could have been collected or may have been left out. • Look for original research articles that might fill in the gaps in the data. • Use a mind map.

to adopt. Before asking students to find a topic and explore sources, demonstrate how you would approach the assignment. Talk through the decisions you make, and choose realistic examples. Depending on how far along students are in the dualism phase, it may be best to skip the topic selection stage and instead provide them with preassigned topics. Allowing students to explore topics under debate that you have identified, without the pressure of choosing a topic in a field they are not yet familiar with, will help students more readily recognize appropriate topics in future assignments. Because learners in the dualism phase still rely on outside authorities for confirmation, build in enough time to provide individual feedback on their work.

A classroom activity that may be particularly appropriate for learners in the dualism phase is the Cephalonian method (Morgan and Davies 2008). The Cephalonian method uses preprepared questions or scenarios so that students can focus on the content of the questions rather than on coming up with their own questions. In this activity the librarian distributes the prepared questions, which are usually color-coded, to students, and then when a particular color is called out, students read aloud the prepared question. For the academic debate example, the librarian could demonstrate how scholars make arguments in an academic debate by providing students with statements representing alternate sides of the same topic. When called upon, students could stage a mock debate by reading the statements they were given. This active learning technique gets students involved and models how scholars communicate without putting pressure on students to immediately find their own examples.

A useful wrap-up activity is a quick reflective writing exercise such as the muddiest point or a one-minute reflection paper (Angelo and Cross 1993). These reflection exercises ask students to either write about something they are still confused about (the muddiest point) or what they learned in class (one-minute reflection). These quick assessment activities serve both the learners and the instructor. The learner benefits from pausing to reflect on what they do or don't know. The instructor gains insights into what students have learned or are still confused about.

In summary, some instructional strategies that are appropriate for learners at the dualism phase include the following:

- Providing clear instructions
- Modeling behaviors before asking students to demonstrate the behavior
- Creating a safe space by providing preselected topics or example scenarios
- Giving individual feedback
- Providing opportunity for reflection

Finally, as learners transition to the next phase, a key strategy is to avoid library assignments or exercises that only expect single, right answers. As Sauer (1995) points out, oversimplified exercises that remove all elements of complexity won't help true learning happen.

Multiplicity

Learners in the multiplicity phase not only see themselves as a source of authority but also see many other voices as potential sources of authority. Learners at this phase will be less likely to categorize a source as authoritative simply because it comes from a preapproved list of sources or from a database that typically contains scholarly sources (see the Real-Life Instruction Example in the box below). However, learners at this phase may need some prompting to look outside of the circle of sources they are already familiar with. The example learning objective and assignment described next provides learners with the opportunity to engage with a variety of source types and to compare and contrast the evidence from each of these source types (see table 2.3).

This example one-shot library session builds on the previous assignment for learners at the dualism phase. Again, learners engage with a topic of academic debate. However, in this assignment learners must find and read several academic and nonacademic sources on the topic under debate. Ideally, the topic would relate to the learner's major field of study. After finding and reading a range of sources, learners must compare and contrast the evidence used in those sources. Students may use some of the same sources suggested for learners in the dualism phase such as research news websites and government websites. However, they may need specific suggestions of where to look for new sources of both academic and nonacademic conversations. For example, suggesting specific nonprofit websites or web aggregators they haven't previously encountered can provide students with new avenues to explore. Students should also be encouraged to begin using source types scholars in their field might use such as review articles or primary sources. Students will likely need to be directed to these sources, especially because these source types often require the use of specialized search tools or search strategies.

The instructional strategies for learners at the multiplicity phase give students an opportunity to build on their existing expertise and to do more independent exploration. Instead of beginning by modeling the exercise for the students, provide brief, clear instructions, and ask students to try some searching on their own first. While they are exploring, walk around the room and observe what tools they try and what problems they may be running into. After students have had a chance to explore some search tools and sources, model some specific behaviors you would like them to try out. For example, if you see that students already know how to access databases in their discipline to find scholarly articles but that no one has located any review articles, you could demonstrate how to find that specific article type. Scaffolding the class time based on a recognition of the experience students already have can make students more receptive to new techniques you present.

Another instructional strategy is to ask students to share responses and observations in pairs first before sharing their responses with the entire class. The think-pair-share activity allows students to develop confidence in their ideas, gather insights from their peers, and finally demonstrate their understanding to the class. Another pair-based activity is to ask one member of the pair to find a scholarly source and the other member to find a nonscholarly source on the same topic. Students can then discuss with each other how they found their sources and what evidence their source used, and then they can compare the two sources. Next, the pairs can switch roles and take turns looking for the source type they have not yet explored. As with the exercise used for learners in the dualism phase, depending on how much time you have, and how much experience students have in their

field of study, it might be helpful to provide preselected topics so that students can put most of their energy into finding, reading, and comparing a variety of sources.

For students in the multiplicity phase, a useful wrap-up assessment activity is the misconception/preconception check (Angelo and Cross 1993). This exercise encourages students to reflect on how their thinking on a particular topic has changed during the class period. Students write briefly about what they thought about a certain topic at the beginning of the class and what they think now. For example, you could ask students how they viewed evidence from nonacademic sources at the beginning of class and what they think now.

In summary, some instructional strategies that are appropriate for learners at the multiplicity phase include the following:

- Suggesting new source types
- Allowing independent exploration
- Modeling specific, scaffolded behaviors
- Working first in pairs
- Valuing their input and expertise
- Providing opportunities for reflection

Some other interesting instructional activities and strategies appropriate for learners at the multiplicity phase have been written about elsewhere. Jackson (2008) describes learners at the multiplicity phase as able to understand the variety of factors that go into retrieving search results from a search tool like Google. An exercise exploring how Google search results are different based on location, past search histories, purchasing habits, and the search engine optimization savvy of the web developer can lead to a discussion about the economics and social factors that go into determining relevancy rankings. Maio and Shaughnessy (2012) use a framework of collaboration with learners at the multiplicity phase because of the framework's emphasis on learning from other people's experiences. In their plagiarism workshop geared toward student leaders, instead of only sharing the experiences of the workshop leaders, participants also share their experiences. Because of the use of this technique, the workshop leaders found student engagement in their own development greatly increased. These examples illustrate ways to engage students in more complex understandings of authority, and the importance of valuing learner input.

Relativism

Learners at the relativism phase are increasingly able to prioritize opinions based on the evidence presented. Additionally, they take into account the context for opinions as they try to establish how to use information. Because they have had practice interpreting information from an increasingly wide variety of source types, they know when to use information for different audiences. As noted in the section on reference librarians, learners at this phase may need to work in multidisciplinary areas and may still need help navigating sources they haven't encountered in their previous work such as raw data or primary sources. The example learning objective and assignment described next encourages students to build on the skills they have and to collaborate with others to use information in a more hands-on way (see table 2.3).

This example one-shot exercise continues with the idea of looking at an academically debated topic from multiple angles. Learners at the relativism phase should have had

practice reading and interpreting both academic and nonacademic sources. This exercise asks learners to explore the data presented in original research so students can draw their own conclusions about the evidence presented. Again, for this exercise students are encouraged to use both academic and nonacademic sources. However, both sources need to include graphs, tables, or some type of data the students can analyze. Students may use a broad range of sources including government websites or reports but should now expand their repertoire to include original research articles, conference proceedings (if appropriate for their field), data sets, or scholarly monographs. Unless students are new to this particular field of study, guidance on how to find these source types should be fairly minimal.

As with learners at the multiplicity phase, learners at the relativism phase should be given brief, clear instructions, and then they can search on their own. If the librarian notices problems or issues while observing students trying to find sources, brief explanations can be given, but the need for instructor modeling should be much more minimal. Instead, the work of the instructor is to provide assignments and questions for reflection that are complex enough to engage these learners. Work in pairs is still appropriate for these learners, as interactions with a peer will encourage a broader range of perspectives. An example task for the pairs could be to explore how they determine the validity of the sources they are using and how data is used differently depending on the disciplinary context.

An example activity for this class is to examine data from both scholarly and non-scholarly sources in pairs. Depending on how much time you have, either preselect the figures and tables or have students choose their own data sets. Students should explain the main point of the charts to each other, provide alternative explanations for the information presented in the charts, and determine whether or not more data needs to be collected or presented to convince them of the validity of the data. Students can then search for other sources that can fill in any remaining information gaps.

Because of the complexity of synthesizing information from a wide range of sources, students could illustrate the connections and gaps they have found in their data with a concept or mind map. Asking students to draw a quick mind-map sketch of the main concepts they have encountered can help learners see new connections between ideas and allows you to see what they have learned.

In summary, some instruction strategies for learners at the relativism phase include the following:

- Showing how to access unfamiliar source types
- Providing challenging assignments and exercises
- Minimal modeling, only as needed
- Encouraging work in pairs to showcase diverse viewpoints
- Valuing their input and expertise
- Giving opportunities for reflection and synthesis

Learners at the relativism phase are active participants in their own learning. Margaret Weaver (2013) recommends shifting our thinking from viewing students as people to be taught at to viewing students as people to collaborate with, who can create and deliver content. Learners at the relativism phase will appreciate this enhanced responsibility and the ability to demonstrate their expertise. Specific domain expertise is still needed for learners to successfully navigate more complex information landscapes. However, Perry

(1997) argues that the intellectual habits of mind learners develop can be transferred to new domains learners encounter.

Library Outreach and Intellectual Development

Library outreach is still a relatively new area, but outreach activities can be used to showcase different views of authority that are meaningful for learners at a range of intellectual development phases. Because learners interact with outreach activities in a less formal way, often without a librarian present, the activities described next are not divided up by intellectual development phase. Instead, learners can choose to be stimulated or engaged at a level of their own choosing.

Library outreach activities often contain interactive elements that invite the participant to become a creator. As a result, these activities can shift the idea of an authority from only belonging to experts to including anyone who wants to try and make something. This idea can be particularly meaningful for learners transitioning between the dualism and multiplicity phases. An example of an outreach activity that includes hands-on making activities open to all learners is a Maker Faire. Maker Faires are frequently hosted at public libraries. Participants at Maker Faires use both new technologies such as 3-D printing and older technologies such as soldering metals. The popularity of these events is growing as participants seek to try out new tools and embrace the idea that they too can be a creator. Crafternoons are another example of an outreach program that focuses on making things. Both public and academic libraries host Crafternoons to showcase craft-based activities such as paper piecing, snowflake making, and embroidery. At the New York Public Library, their Crafternoon event wraps up with a presentation of the work each participant has created.

Outreach activities can also showcase voices whose authority is not often recognized in our society. Book displays featuring authors from traditionally underrepresented groups, or books by authors from different countries, can help learners contemplate how our society chooses whose voices are heard. Posters or banners that accompany the book displays highlighting alternative voices to consider and questioning how authority is determined can help prompt learners at the multiplicity and relativism phases to look for new sources of authority and ways to use evidence to make meaning from a broad variety of sources.

Key Points

Development is a continuous process, and learners need safe spaces in which to explore and grow. Understanding the range of intellectual development phases of your learners can inform the way you provide reference assistance, design instruction sessions, and promote outreach activities. Here are some key points to take away:

- As learners progress through the intellectual development phases, their understanding of authority shifts from seeing authority as belonging to a few individuals to seeing authority as belonging to anyone with an opinion and to seeing authority as being determined by the quality of the evidence and the specific context.
- Reference interactions can provide opportunities for suggesting sources appropriate for the learner's intellectual development phase. Questions that prompt exploration of new ideas can help learners transition to new phases.

- Instruction sessions that are appropriate for learners' intellectual phases use instructional strategies such as modeling how to think as a researcher and reflective activities that encourage learners to participate in their own intellectual development.
- Outreach activities provide learners with the opportunity to see themselves as individuals with the authority to create, as well as to become aware of voices that typically aren't given authority in our society.

Now that you understand the value of using Perry's Intellectual and Ethical Development Theory in your work as a librarian, you are ready to explore some alternative theories of intellectual development. Chapter 3 will guide you through an intellectual development theory based on a more diverse range of learners and will discuss ways to encourage development when dealing with more difficult, real-world problems.

⌾ References

ACRL (Association of College and Research Libraries). 2016. "Framework for Information Literacy for Higher Education." January 11. http://www.ala.org/.

Angelo, Thomas A., and K. Patricia Cross. 1993. *Classroom Assessment Techniques: A Handbook for College Teachers*. 2nd ed. Jossey-Bass Higher and Adult Education Series. San Francisco: Jossey-Bass.

Evans, Nancy J., Deanna S. Forney, Florence M. Guido, Lori D. Patton, and Kristen A. Renn. 2010. *Student Development in College: Theory, Research, and Practice*. 2nd ed. Jossey-Bass Higher and Adult Education Series. San Francisco: Jossey-Bass.

Grallo, Jacqui D., Mardi Chalmers, and Pamela G. Baker. 2012. "How Do I Get a Campus ID? The Other Role of the Academic Library in Student Retention and Success." *Reference Librarian* 53 (2): 182–93. doi:10.1080/02763877.2011.618787.

Jackson, Rebecca. 2008. "Information Literacy and Its Relationship to Cognitive Development and Reflective Judgement." *New Directions for Student Services*, no. 114 (Summer): 47–61. doi:10.1002/tl.316.

Long, Dallas. 2012. "Theories and Models of Student Development." In *Environments for Student Growth and Development: Libraries and Student Affairs in Collaboration*, edited by Lisa Janicke Hinchliffe and Melissa Autumn Wong, 41–56. Chicago: Association of College and Research Libraries.

Maio, Natalie, and Kathryn Shaughnessy. 2012. "Promoting Collaborative LEADers in the St. John's University Community." In *Environments for Student Growth and Development: Libraries and Student Affairs in Collaboration*, edited by Lisa Janicke Hinchliffe and Melissa Autumn Wong, 87–100. Chicago: Association of College and Research Libraries.

Morgan, Nigel, and Linda Davies. 2008. "How Cephalonia Can Conquer the World (or at the Very Least Your Students!)." In *Practical Pedagogy for Library Instructors: 17 Innovative Strategies to Improve Student Learning*, edited by Douglas Cook and Ryan Sittler, 20–29. Chicago: Association of College and Research Libraries.

Perry, William G. 1970. *Forms of Intellectual and Ethical Development in the College Years: A Scheme*. New York: Holt, Rinehart and Winston.

Perry, William G., Jr. 1997. "Cognitive and Ethical Growth: The Making of Meaning." In *College Student Development and Academic Life*, edited by Karen Arnold and Ilda Carreiro King, 48–87. Contemporary Higher Education: International Issues for the Twenty-First Century. New York: Garland.

Sauer, Janice A. 1995. "Conversation 101: Process, Development and Collaboration." In *Information for a New Age: Redefining the Librarian*, edited by Lois M. Pausch, 135–51. Englewood, CO: Libraries Unlimited.

Weaver, Margaret. 2013. "Student Journey Work: A Review of Academic Library Contributions to Student Transition and Success." *New Review of Academic Librarianship* 19 (2): 101–24. doi:10.1080/13614533.2013.800754.