Motivating Students in Credit-based Information Literacy Courses: Theories and Practice

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abstract: Student motivation can have a significant impact on the classroom atmosphere in information literacy courses. The authors survey the education literature that has addressed methods for enhancing motivation and also report from their own experiences. The ARCS Motivation Model developed by John M. Keller serves as a foundation for four aspects of instruction that affect motivation.

Because of a growing emphasis on information literacy, more and more colleges and universities are offering credit-based information literacy courses. Such courses, whether they are general or discipline-based, help students to develop six information literacy skills defined by the Association of Research and College Libraries, including being able to “determine the extent of information needed, access the needed information effectively and efficiently, evaluate information and its sources critically, incorporate selected information into one’s knowledge base, use information effectively to accomplish a specific purpose, [and] understand the economic, legal, and social issues surrounding the use of information, and access and use information ethically and legally.” In most cases, librarians are heavily involved in developing as well as teaching these credit courses.

While numerous librarians have experience teaching one-time instruction sessions, many do not have experience teaching quarter- or semester-long courses. Many also have not taken coursework that teaches pedagogical techniques. Therefore, some librarians find daunting the prospect of teaching the same students week after week. However, if a librarian were to come to each session and find interested, motivated students, the satisfaction of teaching a credit course could be immense. How do effective instructors motivate students?
John M. Keller posits that:

To improve motivation rationally and predictably, there are two requirements. First, it is necessary to have an understanding of motivation; that is, to have an overview of the primary components of the motivation to learn, and of the kinds of strategies that will have a positive influence on these components. Second, it is necessary to know what types of strategies to use, how many to use, and how to design them into the course.²

Motivation is defined as “the process of initiating, sustaining, and directing activity.”³ Motivation can be either intrinsic (internal and self-defined) or extrinsic (externally defined). “Individuals are moved by these two large sets of forces, the extrinsic coming from external sources and often tangible and intrinsic coming from within, usually in the form of intangible personal satisfactions, such as feelings of self-determination and competence.”⁴ The literature is divided about the use of extrinsic motivators, such as grades, awards, certificates, or candy, in the classroom. “Although intrinsic motivation is generally more desirable, it is not sufficient to suggest that college instructors strive to encourage intrinsic satisfactions and discourage extrinsic rewards.”⁵ Extrinsic motivators must be offered indefinitely to be effective, while intrinsic motivators, though slower to take effect and more ambiguous, usually last longer once they have taken effect.⁶ Writing against the use of extrinsic motivators, Eric Sotto reports on research findings, “extrinsic rewards not only undermine intrinsic ones, they also seem to cause poor learning.”⁷

In this article, we review ideas and research from the considerable literature on motivation, primarily from the field of education. We concentrate on intrinsic motivation, specifically in relation to course design, teaching behaviors, active engagement, and student autonomy. We use the ARCS Motivation Model developed by Keller as the scaffolding, supplementing it with information from additional researchers and practitioners.⁸ Both of Keller’s requirements, as mentioned above, are addressed.⁹ In addition, we provide examples from our own instruction of a credit-bearing information literacy course.

Review of the Library Literature

While there are a great many studies of, and articles and books about motivation written by educators, relatively few librarians have written articles focused specifically on this topic. Susan L. Moyer and Ruth V. Small wrote “Building a Motivation Toolkit for Teaching Information Literacy,” but the focus of this article is less on the formal classroom than on the school media center as a learning environment.¹⁰ Morell D. Boone developed an information search model that he used to study motivation during the search process among college students.¹¹

Other librarians who have examined motivation among college students have often done so within the broader context of learning theory. Maureen Kilcullen, in her article on teaching librarians to teach, identifies learning and motivational theories as important areas for teaching librarians.¹² Diane Nahl-Jakobovits and Leon A. Jakobovits explain the importance of understanding learning principles, including motivation, which affect both patron research experiences and instruction sessions.¹³ Joy H.
McGregor considers ways in which people learn. As a part of this, she identifies three factors that have an influence upon learning: multiple intelligences, learning styles, and motivation.\textsuperscript{14} Mary Reichel examines Bruner’s theory of instruction in the context of library instruction.\textsuperscript{15} Bruner posits four characteristics in his theory of instruction: predisposition to learning, structure, sequence, and reward and punishments. All of these have the ability to affect motivation, but predisposition to learning would most easily be classified as intrinsic motivation, while reward and punishments would fall into the category of extrinsic motivation. Mark Beatty also considers motivation using Bruner’s framework, though in a training setting.\textsuperscript{16}

The ARCS Motivation Model

John M. Keller, a specialist in instructional systems and educational psychology, developed the ARCS Motivation Model “based on a general theory of motivation in relation to learning . . . and on supporting studies from many areas of research on human motivation.”\textsuperscript{17} The model outlines four requirements for motivation: attention, relevance, confidence, and satisfaction. Students’ attention can be activated by any sudden change in the classroom; however, to sustain their attention, teachers should use a variety of activities to keep students actively engaged. To create relevance, teachers should share the course goals and objectives with students, use examples from settings familiar to students, employ various teaching methods, and encourage student involvement in class.

As defined by Keller, the cornerstone of confidence is “helping the learners believe/feel that they will succeed and control their success.”\textsuperscript{18} To instill confidence, teachers should make sure students know what is expected of them and should create opportunities for achieving mastery in new knowledge or skills. Finally, students’ satisfaction maintains their desire to learn. Such satisfaction can be derived “from interacting with other people, having their views heard and respected, and from successfully completing a meaningful learning activity.”\textsuperscript{19}

Blocked Motivation

Many researchers and practitioners have done research or posited ways to motivate students. However, not all of the authors whose works we read agree that teachers can motivate students. Sotto points out that “no one can motivate anyone,” as everyone is already motivated to some degree.\textsuperscript{20} He asserts that trying “to motivate somebody is like trying to breathe their air or to digest their food for them.”\textsuperscript{21} It is not a matter of lack of motivation, but blocked motivation. He believes that it is important to find out what is blocking student motivation. By removing such barriers, which are frequently related to lack of active engagement on the part of students, teachers can produce a setting in which learners learn best. The concept of blocked motivation shifts the focus from the teacher to the learner.\textsuperscript{22} While Sotto approaches motivation from a different angle than those writers who work from the supposition that it is possible to motivate students, his suggestions relating to unblocking motivation dovetail well with the rest of the literature we examine, and will be considered with the others.
Course Elements Affecting Motivation

We concentrate on four aspects of instruction that have been identified by various researchers and practitioners as having an effect on motivation: initial course design, teaching behaviors, active engagement, and student autonomy. We relate these elements to Keller’s ARCS Motivation Model and we also provide examples of how we address each of these elements in the Libraries’ information literacy course taught at the University at Albany. This one-credit course, UNL.205, meets two hours per week for seven weeks. Forty sections are taught per year by up to a dozen instructors.

Basic Course Design

In a study of the characteristics most highly associated with ideal or best teachers and effective teaching, stimulation of interest ranks amongst the top two. Another high-ranking characteristic is an instructor’s preparation for and organization of the class. It follows that instructors should spend time and effort on these factors when beginning to teach a course. Joseph Lowman advises that when instructors begin to develop a new course, they “think of the diversity of those for whom the course is being planned. Students in every course have varying abilities, interests, and expectations. Many students are high achievers and wish to be challenged fully. Others merely hope to get by without doing poorly.” He suggests that initial lecture topics be chosen that will engage all students. After the course has begun, students may be introduced to topics that are less obviously engaging. He also recommends that courses contain “a wide range of challenges for students. . . . Designing a course that has a wide range of goals ensures that students with different interests and abilities will find something that captivates and challenges them. More importantly, a wide range of objectives will stretch students’ intellects and pique their imaginations more than will an agenda that stresses only the acquiring of information.”

Lowman’s concerns address two of Keller’s motivational components: attention and confidence. Instructors who make a concerted effort to capture students’ attention with engaging topics and a range of goals and objectives will facilitate student learning. And by providing a range of goals and objectives, students will feel confident that they will be able to succeed in at least some of their endeavors.

The first day of class can be critical in stimulating students’ interest. Starting the class by going over the syllabus line by line and explaining grading in detail might answer students’ questions about the mechanics of the course, but will do little to spark their enthusiasm for its content. Peter Beidler reports success by giving a short quiz on the first day of class that students probably will not be able to answer but which contains some rather astonishing information. He has found that the quiz engages student curiosity about the material, but also curiosity as to whether they have chosen the cor-
rect answers. Glenn Ross Johnson recommends asking students to identify some issues or problems connected to the course content that they would like to have answered during the course.

These motivational techniques do not supplant a well-developed syllabus that contains learning outcomes expected for the course as well as weekly topics and assignments. But a thorough examination of the syllabus with students should take place following efforts to ignite their interest in the course content.

The elements mentioned in this section first and foremost address Keller’s attention component. However, by asking students to suggest issues and problems that should be addressed during the course, instructors are certainly also addressing relevance: “meeting the personal needs/goals of the learner to effect a positive attitude.”

Examples of Course Design Elements

Many of the instructors in the University at Albany’s information literacy course begin the quarter by showing a video, E-Literate? This short video raises many of the issues that will be covered during the course, and does so in an engaging, MTV style. The video piques most students’ interest, and short discussions we hold after watching it reveal a number of topics that students find particularly noteworthy. The first class is also a time for students to introduce themselves to one another, for a review of the syllabus, for a short pre-test that serves the purpose mentioned by Peter Beidler, and for the first group activity that immediately engages them in the course content.

The course is designed with a number of different levels of challenges. Many of these come through the assignments, but others occur during class. Students are assigned a variety of assignments: worksheets, weekly citations and annotations, readings, and accompanying writing assignments. The weekly citations and annotations are graded very liberally, as they serve as drafts that accumulate to form the final course project. Students build confidence over the duration of the course as they become more adept at these assignments. The worksheets are often more challenging, frequently requiring students to investigate important topics before they are covered in class. The reading/writing assignments are used to supplement and enhance course material, not to duplicate what is done in class. Very rigorous work is often saved for use in class, when students have the support of fellow students and the instructor. One such assignment is described in the “Examples of Active Engagement Activities” section below.

We all use clear and thorough syllabi, which lay out just what we expect of students in the course, and what they can expect of us. We plan ahead for class activities and teaching methods for the entire quarter, to address students’ differing levels of abilities and learning styles. Students are able to see how course assignments relate to the course goals and objectives, and to measure their progress as the course unfolds, leading to a sense of satisfaction.
Teaching Behaviors within the Classroom

Much research has been conducted on teaching behaviors in relation to instructional outcomes (such as teacher effectiveness and student achievement) and student motivation. Based on the approaches used, the research can be divided into three categories: descriptive, correlational, and experimental. The descriptive approach is built on the perceptions and observations of students and faculty on the dimensions of effective teaching, while the correlational approach examines the linkages between teaching behaviors and instructional outcomes. Experimental studies are then conducted to determine why the linkages exist. Researchers have found that teacher effectiveness is predictable from specific classroom teaching behaviors. Although the numbers and types of dimensions found in descriptive studies differ, considerable consistency is evident for factors such as enthusiasm, organization, interaction, and clarity. Among the many teaching behaviors studied, those reflecting enthusiasm, clarity, and interaction correlate significantly with instructional outcomes.

Stephen Erdle and Harry G. Murray further point out that the contribution of teaching behaviors to overall teacher effectiveness is also similar across different academic areas.

In addition to increasing teacher effectiveness, teaching behaviors in the classroom are directly linked to student motivation levels. As Diane M. Christophel notes, students who perceive their teachers as both verbally and nonverbally immediate (using gestures, smiles, etc.) have greater levels of motivation. On the other hand, teachers' poor presentation skills, lack of enthusiasm, and overall choice and organization of course materials are largely associated with student demotivation. In this section, we will focus on behaviors related to teacher enthusiasm, clarity, and interaction and their use in motivating students.

Teacher Enthusiasm

Teacher enthusiasm exists in many forms. Enthusiastic teachers tend to speak with vocal quality and variety, move around while lecturing, gesture with hands and arms, show facial expressions, and use eye contact and humor. These behaviors play an important role in effective classroom teaching. After his extensive review of research on teacher effectiveness and low-inference behaviors (concrete and detectable actions), Murray concludes that behaviors reflecting teacher enthusiasm, clarity, and interaction “have emerged consistently as strong predictors of instructional outcomes,” and teacher enthusiasm is the strongest among the three.

Teaching behaviors such as enthusiasm also make a significant difference in student motivation for further learning. Teachers who care about their subjects are eager to share their knowledge with students. The energy and enthusiasm used in delivering the material convey their “passion for the material and for teaching,” which in turn acts as a motivating factor for students. Two studies conducted by Brian C. Patrick, Jennifer Hisley, and Toni Kempler explored the effects of teacher enthusiasm on student intrinsic motivation. The authors found that all thirteen variables studied, including enthusiasm, autonomy, and clarity, correlate substantially with student intrinsic motivation, and among those variables, enthusiasm is the strongest significant predictor of student motivation. Their experimental study also confirms that students taught by
an enthusiastic teacher have greater levels of intrinsic motivation. Both Christophel and Virginia P. Richmond studied the relationship between teacher immediacy behaviors and student motivation. Their studies prove that verbal and nonverbal immediacy behaviors are correlated positively with student motivation, and “vocal variety, smiling, and eye contact appeared to be the major contributors to the relationship.”

According to R. J. Wlodkowski, student motivation follows the sequence of student energy, volition, direction, involvement, and completion. To motivate students, teachers need first of all to obtain and sustain students’ attention and to direct student energy toward the right cause. If teachers fail to attract and hold their students’ attention, whatever they convey in class will be lost to the students and therefore will not have the desired result. One way to capture students’ attention and keep them from getting bored is to show that the teachers are excited about the subject being presented. As Keller explains, any sudden or unexpected change within the classroom—including voice volumes, physical movement, and humor—can activate students’ attention.

Teaching behaviors reflecting the enthusiasm factor produce this kind of change, therefore “serving to elicit and maintain students’ attention.”

In addition, teacher enthusiasm also addresses two other motivational requirements of Keller’s ARCS Model: relevance and confidence. As Gretchen Beidler points out, “[it] takes an enthusiastic teacher to make students care about making choices, to provide a meaningful context for the materials in a course, [and] to make students curious about those materials.”

Clarity

As mentioned earlier, clarity, along with other teaching factors such as enthusiasm and interaction, has positive effects on teacher effectiveness, student performance, and student motivation levels. Behaviors related to the clarity factor include presenting material clearly, using an outline, focusing on major points, giving concrete and multiple examples, and summarizing what has been covered. Such behaviors serve to hold students’ attention in class, to make the course material relevant to students, and to build confidence in students.

In order to present material clearly in class, teachers of course must be knowledgeable about their subject matter and topics, and we take that as a given. However, as Lowman observes, “knowing material well is quite different from being able to present it clearly.” Teachers need to see and present the subject matter from the students’ perspective. Topics and ideas that are very obvious to teachers in the field might be alien to students. Teachers “must approach and organize their subject matter as if they too know little about it,” and “explain ideas and the connections between them in ways that make eminently good sense to the uninitiated.” Obviously, if students do not understand what their teachers are talking about, they are likely to get frustrated and their attention will wander away from the subject. Teachers should therefore use simple language instead of jargon and speak clearly when presenting material. Furthermore, teachers would do well to avoid certain mannerisms, such as the use of meaningless words (“uh,” “well,” “okay”), false starts, and redundancies, since such speech habits can distract students from the class content, causing them to lose confidence in teachers.
Lowman cautions that a poorly organized or unpredictable class can cause great dissatisfaction in students since it does not satisfy their need for control. To guard against disorganization, a class outline illustrating what topics and major points will be covered may be used to structure the class. The outline can be put on an overhead projector or a document camera, or written out on a white board or flip chart. Not only will the outline give students a sense of control, but it will also help to capture students’ attention and focus it on the objectives of the class, thus ensuring that students are following the logical flow of the material being presented.

Obviously, teachers cannot cover everything in class, and they should resist the urge to go over too much material at any one time. Bette LaSere Erickson and Diane Weltner Strommer argue that teachers’ compulsions to cover too much “are usually counterproductive,” and “students often tune out if the information is coming too fast and they have no time to think.” Instead, good teachers focus on the major points related to the subject matter. They do not “flood their learners with a mass of knowledge but keep most of what they know in reserve.” Lowman suggests that teachers use the following four guidelines in deciding what points to include in a lecture: 1) choose points that link many topics together; 2) choose points that are of high interest to students; 3) occasionally pick topics that are especially difficult; and 4) select topics that are neither too simplistic nor too complicated.

Since students learn by way of examples, illustrations, and demonstrations, good teachers follow up theoretical points with practical examples. Multiple examples, drawn from different settings, should be given to illustrate and clarify the points so that students will not only have a better understanding of the ideas but will also be able to apply them to new situations.

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and related to students’ experiences.” Such examples can help students to find the links between the new concepts and students’ prior knowledge, thereby helping them to remember the concepts.

Reviewing at the end of each major section not only summarizes the important points of the section, it also helps “students notice that a transition is occurring and a somewhat different point is now going to be addressed.” By providing clear cues marking the end of one topic and the beginning of another, teachers can help to keep their students from getting confused and help them to follow the transition from one topic to the next. To ensure that students successfully have understood the various topics covered in a class, a summary at the end of the class is important. Teachers should take several minutes to recap the major ideas presented. This kind of conclusion “helps keep all students on their toes.” An oral summary and a classroom assessment technique, such as a one-minute paper, are two activities that teachers can use.
Interaction

Virginia P. Richmond’s study indicates that while the use of authority- and coercion-based behavior alteration techniques is negatively linked to student motivation, the use of affinity-seeking techniques, including assuming equality and optimism, is positively associated with motivation.69 Lowman also argues that students’ sentiments in the classroom strongly affect their motivation to learn. To motivate students, therefore, teachers should avoid stimulating negative emotions in students, and do all that they can to promote positive feelings.70 Teaching behaviors such as addressing students by name and complimenting them for good ideas can stimulate positive emotions in students. Calling on students by name in class shows the teachers’ personal interest in students’ learning, and makes them feel like an integral part of the class. By encouraging students’ questions and comments, teachers indicate confidence in their students, and underline the importance of students’ opinions.71 In addition, praising students for their good ideas makes them feel good about themselves and about the class in general. In contrast, being critical and making students feel foolish can create an atmosphere of fear and stress, which inhibits learning.72 For that reason, student errors should be pointed out quietly and tactfully, and teachers should avoid appearing superior or snobbish.73 Using expressions such as “our class,” “I expect,” “I hope,” “I would like,” and “I think you will” helps to de-emphasize the teacher’s power over students and therefore increases students’ interest and their inner motivation.74 Lowman and Sotto echo Keller: the good classroom interaction techniques mentioned in this section generate both confidence and satisfaction in students.75

Studies have shown that students have a brief attention span. Students are fairly attentive for the first ten to fifteen minutes of class and then they become increasingly bored and restless.76 Keller suggests that to sustain students’ attention, a variety of knowledge-seeking activities should be used in class.77 Small group discussions, case studies, hands-on, and writing-to-learn exercises are some examples. Regardless of the methods used, these activities make the class more interactive and allow students to participate actively. Hands-on exercises give individual students opportunities to apply what they have learned and help to bridge the gap between theories and practice. Small group discussions involve all students and allow them to talk things over with their peers.78 Writing-to-learn exercises “encourage [students] to make material meaningful by restating it in their own language.”79 However, with regard to keeping students’ attention, Lowman states that one good rule is never to do any single thing for too long.80 Teachers, therefore, should not only punctuate their class presentation with their enthusiasm, humor, and examples, but also maintain a variety of instructional methods and activities. As Keller points out, “instructors who use the same instructional approach repeatedly, even though it is a ‘tried and true’ method, will benefit from variation.”81 In addition, the various teaching methods and activities that keep

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students actively engaged help to produce confidence and satisfaction in students (this will be addressed in the Active Engagement section later). Students’ personal involvement in the class is also helpful in achieving relevance, and the use of various strategies helps to “make the instruction more appealing.”

Examples of Teaching Behaviors

Many teaching behaviors that have a direct influence on student motivation have been laid out in the section above. In this section, we elaborate on some of those behaviors by providing examples of how they are employed in the teaching of our information literacy classes.

During the first day of class, in order to get acquainted with the students, introduction forms are distributed, and students are asked to provide information regarding their personal backgrounds, such as their majors, their hobbies, their expectations for the class, where they are from, etc. They may also write down anything else that they would like us to know, including special accommodations or preferences of which we should be aware. The forms are then collected. The information serves as a reference for future class design. It helps instructors to tailor the classes to the special interests and needs of the students. We also try to remember our students’ names and address them by name during the first day of class, or by the second class at the latest. We usually arrive at the classroom ten to fifteen minutes before the class starts to ensure that everything—from presentation equipment to student workstations—is all set for that day’s class. When students arrive for class, they are greeted in a friendly fashion, thus establishing a preliminary rapport between instructor and student.

At the beginning of each class, an outline of topics to be covered in class is provided to the students on a document camera or an overhead projector. Depending on the topic, various teaching techniques are used, including lecture, group discussion, hands-on, and writing exercises. For instance, after introducing the concept of annotations in comparison with abstracts, we explain, by showing the students some examples, what elements should be included when writing an annotation. A copy of an article is handed out to each student. They are asked to read the assigned article and practice annotating it in class. The same method is used in a later class when discussing how to write citations, except that in this case students work in groups (three to five people) rather than individually.

We also rely on visual aids as well as a number of online tutorials. For example, when teaching the web evaluation class, the video Internet: the Rumor Mill is shown to initiate discussions on why websites need to be evaluated and what evaluation criteria should be used. The instructor summarizes the discussions with a handout on criteria that students should use to evaluate web sources. Then small groups are formed to examine a website on human cloning and to evaluate it by answering ten evaluation questions. While students are working on the project, the instructor walks around the classroom, listens to students’ comments, and answers any questions students may have. After twenty minutes or so, the entire class discusses the ten evaluation questions together. During the following week’s class, each student takes an online tutorial on evaluating web sources to reinforce what he or she learned during the previous class.
Examples for class topics are drawn from students’ experiences and geared toward subjects of interest to them. For instance, one of the course topics concerns the differences between scholarly journals and popular magazines. When selecting the periodicals for students to compare, we purposefully choose popular magazines that students are familiar with (e.g., *Time*, *Newsweek*, and *Business Week*) and also pick one scholarly journal for each student’s major. That way, students are working with materials that are not alien to them. Examples taken from current events are also injected into the classes. For instance, after one author heard about the recent Supreme Court case on peer grading in relation to privacy, she asked her students to grade each other’s quizzes in class and then used that and the Supreme Court case as a basis for further discussion on privacy.

Students are encouraged to ask questions during class. If on occasion the instructors are not able to answer the question, they work on it after class to provide an answer for the next class. Students are also invited to explore the question on their own outside of class so that the results may be compared. In addition to asking students orally what their questions are, some instructors also hand out index cards at the end of class and ask students to write down what they did not understand about the class. If an area is unclear to many students, the instructors go over that topic again during the following week’s class. If the problem concerns only a few students, the instructors ask to see those students individually.

Topics covered in each class are essential to the course and to the students’ understanding of information literacy. Important topics (such as critically evaluating information and its sources) are emphasized during each class. The weekly topics are linked together through comparisons, contrasts, and exercises. For example, when discussing the unique features of periodicals one week, students are asked to compare them with books discussed the previous week. In the same way, after completing a Research Strategy worksheet, which requires students to identify the major concepts of their topics and to develop synonyms and related terms for each concept, the students are then ready, the following week, to formulate database search queries by using the appropriate Boolean operators. During the ensuing class, when Internet searching is introduced, students must once again refer back to the Research Strategy worksheet to develop search strings. In this way, no one class is completely isolated from the others.

**Active Engagement**

Active engagement, the third aspect of instruction we address in relation to motivation, takes many forms in the classroom. Instructors might use discovery methods, cooperative or collaborative learning, or other ways to engage students in their learning.

Sotto speaks tellingly of this topic:

> Everybody agrees that we learn best when we are actively engaged. If you want to learn how to ride a bicycle, you have to ride a bicycle. If you want to learn how to bake a cake, kiss a girl, understand thermodynamics, or kiss a boy, you have to do those things. Explanations from somebody who already knows can help. But no matter how good the explanation, the best way to learn is when we are actively engaged.
It follows that, if we can discover what people mostly do in a given situation, we will also discover what they are mostly learning. What do learners mostly do in a classroom? In many classrooms they mostly sit and listen. It follows [sic] that they learn

- to sit and listen;
- to believe that learning is a matter of sitting and listening; and
- that answers come out of a textbook or a teacher’s head.

Research has compared an active versus a passive orientation to learning. In a study by Carl A. Benware and Edward L. Deci, separate groups of students were asked to learn some material. One group was told that it would be tested on this material. The other group was told that it would teach this material to others. The researchers used “a motivational derivation, linking more active learning to intrinsic motivation and more passive learning to extrinsic motivation . . . [and] collected data to test the difference in subjects’ reported intrinsic motivation when given an active motivational set versus a more passive motivational set.” The data collected supported Benware and Deci’s hypothesis that creating a more active orientation (learning in order to teach) enhanced intrinsic motivation and led to greater learning.

While Benware and Deci’s study involved conceptual learning, an earlier study by John A. Bargh and Yaacov Schul about the benefits of tutoring on tutors involved rote learning. Bargh and Schul examined various aspects of teaching that explain why tutors benefit from their experiences more than do those being tutored. They divided teaching into three phases: preparing to teach, initial presentation of the material to students, and responding to student questions. Their studies indicate that “there is a cognitive effect of teaching, located in the ‘preparation stage’ of the teaching process.”

They posit that this “may occur because of an increase in motivation . . . or as a result of a greater interest in the subject matter.” It is possible that teachers have a more organized cognitive structure that allows them to remember what they have learned and to acquire new information more effectively. Both this study and Benware and Deci’s suggest that students who expect to teach the material to others have increased motivation and learning.

Active engagement on the part of students in order to increase their motivation to learn can take many forms beyond learning in order to teach others. Lowman lists a number of these, some of which are accomplished individually:

- solve problems
- apply general principles to real-world examples
- record reactions to readings or presentations in journals

And some of which are not:

- small group work
- participation in simulations
- group presentations
- small group debates
- cooperative projects

Stuart A. Karabenick and Jan Collins-Eaglin cite studies that provide “considerable evidence that motivation and learning are facilitated in settings that promote mastery rather
than performance goals.” They define mastery goals as those that “focus on the learning process with an emphasis on individual improvement, gaining new skills and challenge,” while “performance goals are defined as a concern with outcomes such as grades, rather than process, and with one’s ability (especially in comparison to others).” They list the following conditions that support mastery goals:

- challenging tasks;
- a high degree of student choice and control;
- a focus on individual improvement and individual evaluation; and
- opportunities for students to work together on assignments.

Their own study provided data that supports “the hypothesis that a learning atmosphere where students work together and grades are de-emphasized creates higher levels of student engagement in learning.”

The course design section of this article addresses the topic of providing challenging tasks, the first of Karabenick and Collins-Eaglin’s four conditions supporting mastery goals. The second condition, the issue of student choice and control, including control over learning based on individual evaluation, is examined later in this article. First we consider the issue of students working together on course work, condition number four.

**Cooperative Learning**

Cooperative learning is one way to engage students inside, and possibly outside, of class. Lowman describes cooperative learning as a way “to promote student mastery of traditional content . . . by enlisting students as fellow teachers and learners in small learning groups or pairs. The techniques involve much more than simply having students interact in class or help others with their work. There must also be a combination of positive interdependence, whereby each student’s learning benefits when the entire group improves, and individual accountability, in which each student is held accountable for his or her learning.”

Learning groups can be formed on an ad hoc basis, or may be stable over the course of the semester. Instructors should consider carefully the ideal size of the group, the group membership, and ways to make students accountable. Nilson addresses the benefits of cooperative learning, ways to organize and manage it, and also provides a number of cooperative learning activities. Because both the teacher’s and the students’ roles change with cooperative learning, thought must be given how to implement cooperative learning in the classroom. The success of cooperative learning depends on several factors, including understanding the process, engaging the students in meaningful group activities, and advanced planning before implementing the assignment.”
Discovery Learning

One way to promote student mastery is to allow learners to discover course material before it is presented to them. "Students find nothing so satisfying and intrinsically motivating as reasoning through a problem and discovering the underlying principle on their own." Passive methods of learning, such as listening to lectures or reading a text, are not the most effective ways to learn. Nilson stresses that, "the best methods permit learning by doing, by acting out, by experiencing first-hand, or by thinking through to realization." It is critical, when using this method, to allow students to come to their own conclusions.

Active Engagement and the ARCS Model

Students who are actively engaged with course material will find themselves to be more confident learners. If the learning is designed carefully, they will have successful experiences as they master the course objectives. They will learn that they are indeed capable of succeeding, both through their own abilities and with the help of other students in the class (in collaborative learning methods).

Keller notes, "We often underestimate both the fear of failure and desire to succeed in an audience, because the former tempers the latter, and this can make people appear more neutral than they really feel. This is one reason why it is important to provide meaningful success experiences for learners as soon as possible in a workshop or course."

Discovery learning is a prime way to build confident learners. Initial discovery assignments should not be so difficult that they undermine students' confidence and the instructor should provide feedback so students understand how well they are doing. Later discovery assignments should be more challenging, in order to build upon initial successes and to provide additional satisfaction, the fourth item in Keller's ARCS model.

Cooperative learning experiences also build confidence and lead to the satisfaction of using "newly acquired skills or knowledge." Described below is a cooperative learning activity that meets Keller's tenet: "If the relevance of the course has been previously established, and the student has application opportunities, then the student's intrinsic motivation will be high and there will be less of a requirement for extrinsic rewards."

Examples of Active Engagement Activities

A method one author uses near the end of the Information Literacy course involves cooperative learning. While we frequently use pairs or small groups to tackle a variety of activities in our courses, this particular segment uses true cooperative learning. Students have already been introduced to the research strategies sections of the course, and are ready to do some exploration on their own. The topic of the week is social and ethical issues related to information. The instructor asks students the week before to read one of several recent articles on topics such as the digital divide, privacy or security on the Internet, and plagiarism. One article is given to three different students. The next week in class students form groups based on the article they were given. Each group is asked to identify the main theme of the article, and then to do additional research on the topic, using the skills they have learned to date (such as searching online..."
databases and doing effective web searches). Each student has a role to play: search moderator (who must make sure the searching is effective), information manager (who makes sure that the information is being shaped into a cohesive whole for presentation to the class), and timekeeper/facilitator (who not only ensures that the group work progresses in a timely fashion, but also helps to resolve any group conflicts). Groups have fifteen to twenty minutes to do their research and to prepare a brief (two to three minute) report. While the preparation time may seem to be very short, all groups have risen to the occasion and presented very enlightening information. This late in the course, students have some confidence in their searching abilities, and gain more through this activity. They also get a sense of satisfaction from being able to meet the time deadline and from presenting a cohesive report (each group is allowed to decide if one, two or all three group members will make the presentation). In the next section we specifically address the effects of autonomy on motivation. However, note that this activity provides students with choices—they are able to make the decisions about the most effective searching strategies, and whether to start with databases or the World Wide Web.

The discovery method is represented in our course by some of our worksheet assignments. In one, students are guided through questions about the EBSCO database before databases are even discussed in class. The exercise is designed to introduce students to the concept of a database and its basic functionality, so that they will have a background to draw upon during the ensuing class discussion. In the next written assignment, students are asked to execute the same search in a database and in a search engine. We provide a variety of search strings, each with a targeted database, for them to choose from. They are also able to select one of three search engines. The questions they answer on this worksheet are designed to help them to differentiate between the quality and quantity of the results that they find using these two different systems.

**Autonomy**

Peter Beidler selects choice as one method of motivating students. He is interested in retaining students’ desire to learn in required courses that students do not specifically choose to take. Although the larger choice is not theirs, he provides places within the course for students to exercise options. Choice does not mean asking students to design the course in conjunction with the instructor. There are other ways to offer students choices that will motivate them. One is suggested by Johnson and was mentioned in the course design section above. Johnson recommends asking students to identify some issues or problems connected to the course content that they would like to have answered during the course. This provides them with choice, but it is likely that many of the topics mentioned were to have been covered anyway. Additional new concepts can be included in the course based on the instructor’s judgment. It is important not to promise that all topics raised necessarily will be covered.

Beidler suggests additional ways to allow students choice, such as offering them a variety of topics about which to write, letting them select the format of some of the writing projects, permitting them to select the time they come in for rough-draft conferences, and letting them help to select one of the course readings. Allowing such choices is even more critical in a required course than in a course students have elected to take.
Beidler examines another aspect of control. He mentions that giving daily, announced quizzes rather than larger exams makes students feel as if they have control over their own academic success in the course. He reports that students do the course work and readings in order to prepare for these quizzes, ensuring that they are caught up in the work of the course. Rather than being upset by weekly quizzes, students are actually enthusiastic about them.108

Allowing students some autonomy relates to both relevance and confidence in Keller’s Motivation Model. When students are able to provide input on course topics and make choices about their writing topics and the format of their assignments, they will be more likely to see the relevance of the material to their own interests and goals. They also become more confident about their ability to succeed.

**Examples of Autonomy**

Our information literacy course allows students to select their own topics for the final annotated bibliography project. Students work on this project from the very beginning of the course, so the relevance of many of their assignments is evident, particularly when students select a paper topic from another course’s assignment. Some of the worksheet assignments allow students some choices: either they are able to use their bibliography topic or they are able to select a topic or search engine from a number of suggestions, as mentioned above.

One author also queried her students about the daily quizzes she gives. Her findings were remarkably similar to those of Peter Beidler: students did not find them anxiety-inducing; instead the quizzes provided motivation for reviewing the course material.

**Conclusion**

Librarians without a formal background in education face many challenges when they begin to teach credit courses. This is particularly true for an information literacy course, which might meet general education requirements but otherwise does not appear immediately relevant to a student’s major or life goals. Findings from research on learning theory can be very useful when developing or teaching a course. This article addresses one element of learning theory: motivation. Often instructors believe that motivation rests with students, and feel helpless to change learners’ motivational states. However, instructors are able to affect student motivation using a variety of techniques.

The authors have focused on four aspects of instruction that have an influence on motivation: course design, teaching behaviors, active engagement, and student autonomy. Each of these four elements has been related to Keller’s ARCS Motivation Model, and examples have been provided from a basic information literacy course. Understanding these key aspects of instruction in conjunction with Keller’s Motivation Model will allow instructors to develop their own techniques for enhancing or releasing student motivation.
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Notes

5. Ibid.
6. Ibid.
9. What we will not address is the number of motivators to use, as this depends very much upon the students, course, and time available during each class.
18. Ibid.
19. Ibid.
20. Sotto, 17.
21. Ibid.
22. Ibid., 28.
25. Ibid., 195.
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by a father and daughter (professor and student). Because their experiences and backgrounds are very different, we will identify to which Beidler we are referring in each instance.


31. E-literate?, prod. and dir. Pacific Bell and the UCLA Graduate School of Education and Information Studies, 9 minutes, University of California Regents, 2000, videocassette.


34. Perry, 26.

35. Murray, 188.


39. Murray, 188.

40. Ibid.

41. Nilson, Teaching at Its Best, 58.


43. Ibid., 223.

44. Ibid., 231.


47. See the reference to R. J. Wolockowski’s book Motivation and Teaching in Christophel, 324.


49. Ibid., 2.

50. Murray, 181.

51. Beidler and Beidler, 21.

52. Lowman, Mastering the Techniques, 22.

53. Sotto, 126.

54. Lowman, Mastering the Techniques, 22.

55. Ibid., 23.

56. Ibid., 103–5.

57. Ibid., 55.

58. Bette LaSere Erickson and Diane Weltner Strommer, Teaching College Freshmen (San Francisco: Jossey-Bass, 1991), 98.

59. Nilson, 79.

60. Erickson and Strommer, 96–97.

61. Sotto, 126.

62. Lowman, Mastering the Techniques, 137–38.
63. Sotto, 126.
64. Nilson, 79.
65. Murray, 181.
67. Nilson, 80.
68. Ibid.
69. Richmond, 188–89.
70. Lowman, *Mastering the Techniques*, 27.
71. Ibid., 29.
72. Sotto, 123.
73. Ibid., 125.
74. Lowman, “Promoting Motivation and Learning,” 139.
76. Nilson, 76.
78. Erickson and Strommer, 109.
79. Ibid., 115–16.
82. Ibid., 4.
84. The URL for the human cloning web site is <http://www.humancloning.org/allthe.htm> [April 3, 2002].
85. The online tutorial *Evaluating Internet Sites* 101 is created by Carol Anne Germain, our Networked Resources Librarian. It is available at <http://library.albany.edu/usered/webeval/index.html >
86. The case was filed against an Oklahoma school district by Kristja Falvo, who claims that peer grading violates the privacy of students.
87. Sotto, 22.
89. Ibid., 763.
91. Ibid., 594.
92. Ibid., 595.
95. Ibid.
96. Ibid., 338.
98. Nilson, 107–118.
100. Nilson, 58.
101. Ibid., 69.
103. Ibid., 5.
104. Ibid.
105. Beidler and Beidler, 16.
106. Johnson, 16.
107. Beidler and Beidler, 16.
108. Ibid., 23–24.