

**How to integrate learner motivation planning into lesson planning:
The ARCS model approach**

John Keller
Florida State University
U.S.A.

Running head: Integrating motivation

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Introduction: Issues & Problems

Every educator knows the challenge of stimulating and sustaining learner motivation and the difficulty of finding reliable and valid methods for motivating learners. One approach to meeting this challenge is provided by the ARCS model of motivation (Keller, 1999a, b) which provides guidance for analyzing the motivational characteristics of a group of learners and designing motivational strategies based on this analysis. After giving an overview of the model, I will describe some recent developments including a simplified approach to applying it and how it may be incorporated into lesson planning.

Characteristics of the ARCS Model

The ARCS model is based on a synthesis of motivational concepts and characteristics into the four categories of attention (A), relevance (R), confidence (C), and satisfaction (S). These four categories represent sets of conditions that are necessary for a person to be fully motivated, and each of these four categories has component parts, or subcategories (Table 1), that represent specific aspects of motivation.

First, a lesson must gain the learner's **attention**. Tactics for this can range from simple unexpected events (e.g. a loud whistle, an upside-down word in a visual) to mentally stimulating problems that engage a deeper level of curiosity, especially when presented at the beginning of a lesson. Another element is variation, which is necessary to sustain attention. People like a certain amount of variety and they will lose interest if your teaching strategies, even the good ones, never change.

The second requirement is to build **relevance**. Even if curiosity is aroused, motivation is lost if the content has no perceived value to the learner. Relevance results from connecting the content of instruction to important goals of the learners, their past interests, and their learning styles. One traditional way to do this is to relate instructional content to the learners' future job or academic requirements. Another, and often more effective approach is to use simulations, analogies, case studies, and examples related to the students' immediate and current interests and experiences. For example, secondary school children enjoy reading stories with themes of stigma, popularity, and isolation because these are important issues at that time of their lives.

The third condition required for motivation is **confidence**. This is accomplished by helping students establish positive expectancies for success. Often students have low confidence because they have very little understanding of what is expected of them. By making the objectives clear and providing examples of acceptable achievements, it is easier to build confidence. Another aspect of confidence is how one attributes the causes of one's successes or failures. Being successful in one situation can improve one's overall confidence if the person attributes success to personal effort or ability. If the student believes that success was due to external factors such as luck, lack of challenge, or decisions of other people, then confidence in one's skills is not likely to increase.

If the learners are attentive, interested in the content, and moderately challenged, then they will be motivated to learn. But to sustain this motivation, the fourth condition of motivation is required -- **satisfaction**. It refers to positive feelings about one's accomplishments and learning experiences. It means that students receive recognition and evidence of success that support their intrinsic feelings of satisfaction and they believe they have been treated fairly. Tangible extrinsic rewards can also produce satisfaction, and they can be either

substantive or symbolic. That is, they can consist of grades, privileges, promotions or such things as certificates, monogrammed school supplies, or other tokens of achievement. Opportunities to apply what one has learned coupled with personal recognition support intrinsic feelings of satisfaction. Finally, a sense of equity, or fairness, is important. Students must feel that the amount of work required by the course was appropriate, that there was internal consistency between objectives, content, and tests, and that there was no favoritism in grading.

These four categories provide a basis for aggregating the various concepts, theories, strategies, and tactics that pertain to the motivation to learn (Keller, J. M., 1987a). They represent the first major part of the ARCS model, which is the synthesis of the vast motivational literature into a simple and useful number of macro-level concepts. They also provide the basis for the second major feature of the ARCS model which is the systematic design process that assists you in creating motivational tactics that match student characteristics and needs (Keller, 1987b).

The ARCS model contains a ten-step design process for the development of motivational systems in work and learning settings (Figure 1). The first two steps, which are parts of the overall analysis components of the process, produce information about the status quo and provide the basis for analyzing gaps and their causes which are done in the third and fourth steps. Based on these analyses, in Step 5 one prepares objectives for the performance improvement project and specifies how they will be assessed. There are then two steps in design. Step 6 consists of brainstorming within each motivational category to generate a rich list of potential solutions. Step 7 is more critical and analytical for the purpose of selecting solutions that best fit the time, resource, and other constraining factors in the situation. The final step includes both development and evaluation, and is similar to any other development model.

Analysis. As in any systematic design process, motivational system development begins with collecting information (Steps 1 and 2) and analyzing it (Steps 3 and 4) to identify motivational characteristics and gaps which lead to objectives (Step 5). In this process, there are two difficulties in determining the degree and nature of a motivational problem. First is that problems resulting in symptoms of demotivation may not be due to motivational causes. People can become demotivated as a consequence of what is, in fact, a capability or opportunity problem. For example, people who do not have and cannot get the skills required to perform satisfactorily will soon learn that they cannot succeed to a satisfactory degree. They will develop low expectations for success, or even feelings of helplessness, and will be demotivated as evidenced by lowered levels of effort and performance. However, the cause of the problem in this example is lack of skills.

Table 1. Modified subcategories of the ARCS model

Attention
<p>Capture Interest (Perceptual Arousal): <i>What can I do to capture their interest?</i></p> <p>Stimulate Inquiry (Inquiry Arousal): <i>How can I stimulate an attitude of inquiry?</i></p> <p>Maintain Attention (Variability): <i>How can I use a variety of tactics to maintain their attention?</i></p>
Relevance
<p>Relate to Goals (Goal Orientation): <i>How can I best meet my learner's needs? (Do I know their needs?)</i></p> <p>Match Interests (Motive Matching): <i>How and when can I provide my learners with appropriate choices, responsibilities, and influences?</i></p> <p>Tie to Experiences (Familiarity): <i>How can I tie the instruction to the learners' experiences?</i></p>
Confidence
<p>Success Expectations (Learning Requirements): <i>How can I assist in building a positive expectation for success?</i></p> <p>Success Opportunities (Learning Activities): <i>How will the learning experience support or enhance the students' beliefs in their competence?</i></p> <p>Personal Responsibility (Success Attributions): <i>How will the learners clearly know their success is based upon their efforts and abilities?</i></p>
Satisfaction
<p>Intrinsic Satisfaction (Self-Reinforcement): <i>How can I provide meaningful opportunities for learners to use their newly acquired knowledge/skill?</i></p> <p>Rewarding Outcomes (Extrinsic Rewards): <i>What will provide reinforcement to the learners' successes?</i></p> <p>Fair Treatment (Equity): <i>How can I assist the students in anchoring a positive feeling about their accomplishments?</i></p>

The second difficulty in identifying a motivational problem lies in the nature of motivation. Motivation follows a curvilinear relationship with performance (Figure 2). As motivation increases, performance increases, but only to an optimal point. Afterward, performance decreases as motivation increases to levels where excessive stress leads to performance decrements. There is always some level of tension, or stress, associated with motivation. On the rising side of the curve it is sometimes referred to as facilitative stress and on the downside as debilitating stress.

Given that there is a motivational problem, one then classifies it according to the four categories described earlier and determines whether the learners or employees are under- or over-motivated in each case. For example, in the case of attention, people might be demotivated because they are bored and not paying attention to the task, or because they are so over-stimulated by the job opportunity or requirements that they are trying to pay attention to too many things at once. In both cases they do not focus their attention on the critical task, but solutions differ depending on whether the cause is under- or over-stimulation. Comparable problems occur in the other categories of motivation and require tactics to modify learner motivation into a more productive range.

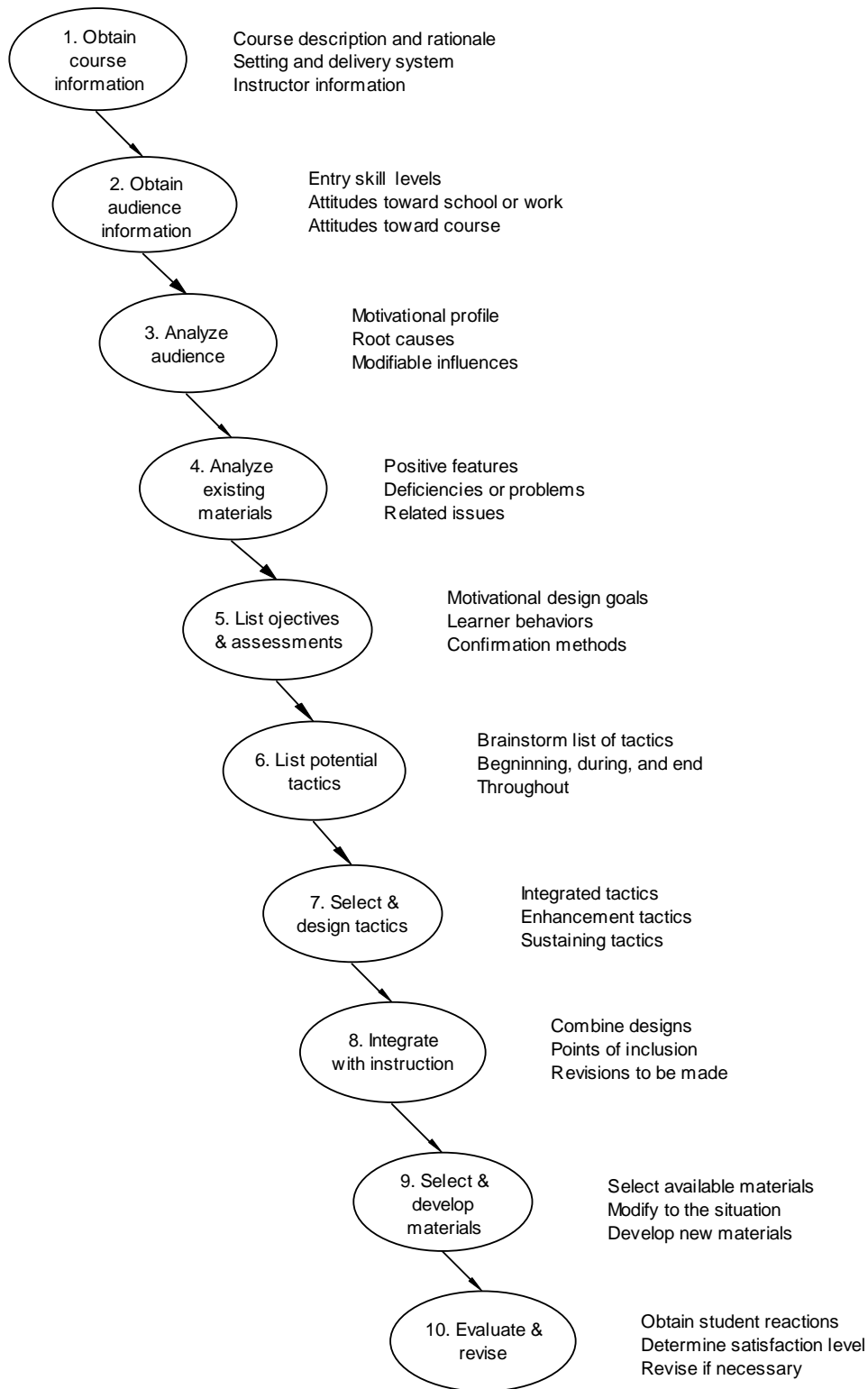
In conducting motivational analysis, it is important to identify the nature of motivational gaps in these terms, and to realize that the problems might be different in one subgroup or individual than in another. It is also important to identify the presence of any positive motivational factors. A motivational system has to be capable of solving motivational problems, but it also has to sustain desirable levels of motivation. The output of analysis indicates where there are motivational gaps to be closed and where satisfactory levels of motivation need to be sustained rather than changed. Figure 2, for example, illustrates that the class under analysis has learners with widely varying levels of confidence, that there are two aspects of relevance of which one is too high and one is too low, and that the levels of attention and satisfaction are about right. The two levels of relevance probably result from the class being required which makes it necessary for success, but not being perceived by the learners as having any personal value. The results of this analysis provide guidance in selecting and generating motivational tactics.

Design. In motivational design (Figure 1, Steps 6 - 8), it is best to work on specifically defined problems. This needs to be stated because it can be more of a problem in motivational design than in some other performance areas. Often, people will try to deal with the global issue of how to improve motivation by adopting a global solution, such as a new set of curriculum materials or an entirely new approach to teaching. This approach may be successful for awhile, but after the novelty wears off, the old motivational problems tend to re-emerge.

After choosing a specific problem to solve, the primary task in the first design step (Step 6) is to brainstorm possible solutions. At this point, all potential solutions should be listed without regard to their presumed feasibility. The goal, as in any brainstorming process, is to produce as many ideas as possible.

The second task (Step 7) is to define the ideal solution without regard to constraints. The ideal solution might be constructed from several of the specific suggestions that were made during the brainstorming process, or it might emerge as a new idea from the stimulation provided by brainstorming. An important element at this point is to not worry about expense, organizational policies, or other constraints that might inhibit the discovery of an ideal solution.

Figure 1. Motivational design: Ten step model

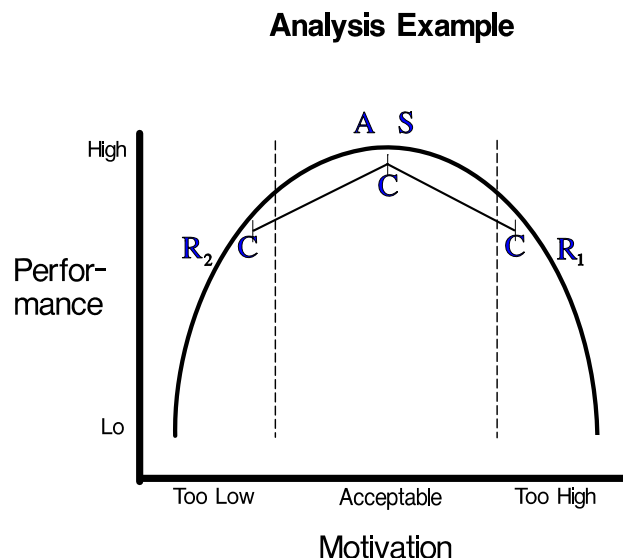


Then, in Step 8, one selects the most feasible tactics listed in Step 7 and integrates them into a motivational system. The reason for making this a multi-step process is that Step 6 encourages one to envision, without restraint, all potential solutions, including those that might initially seem to be too grandiose or “ideal.” By so doing, one is more likely to approximate an ideal than if one had narrowly focused from the beginning on the first possible solution. In Step 7 of the process, one creates the best possible solutions by combining ideas from step 6 and by applying several selection criteria pertaining to expense, policy, acceptability, and proportionality (the motivational activities should support the learning goals, not distract from them).

Development and evaluation of the solutions, which occurs in Steps 9 and 10, follow the same process that one would employ for any other area of application. The first activity is to prepare a plan of work for writing, media development, developmental reviews, and preparations for implementation. As with any effective system development activity, it is important to have motivational tactics and strategies well integrated with other system components. For example, tactics such as case studies at the beginning of a lesson can be a total waste of time if they do not meet specific needs of the audience and help prepare them for the topics and objectives of the course. Audience evaluation provides the means for determining the effectiveness of the tactics.

This design process is comprehensive and effective, but it has two limitations. First is that it requires that the motivational designer or teacher have quite a bit of knowledge of the different motivational factors represented by the four categories and all the subcategories. Second, it can be time consuming to implement all the steps. In situations where there are serious motivational challenges, or when it is highly critical to maximize the motivational effectiveness of a lesson or course, then the full ten-step process can be the best approach to follow. But, in many situations these conditions are not met. With teachers or instructional designers who have little or no formal knowledge of motivational concepts and principles, or in settings where a quick approach can result in adequate improvements, it would be good to have a simpler model.

Figure 2: Curvilinear diagram for audience analysis



A Simplified Approach

A recent development in Japan (Suzuki and Keller, 1996; Keller, 1997) provides a simplified and effective approach to motivational design, and it has subsequently been applied in two innovative applications to the improvement of self-directed learning. The first was in the development of motivationally adaptive computer-based instruction (Song, 1998). In addition to incorporating the simplified motivational design approach, it builds on concepts and approaches initiated in the United Kingdom and Italy by del Soldato and du Boulay (1995) and in Austria (Astleitner and Keller, 1995). The prototype of the adaptive CBI was developed in the USA, and it will be cross-validated in Korea. The second application was in the student support methods for a distance learning course in Europe (Visser, L., 1998). It is interesting to note the multinational representation in these studies.

In Sendai, Japan, a team of 25 teachers in 8 subject areas at Sendai Daichi Junior High School had been developing computer application projects for several years as part of a demonstration project sponsored by the Japanese national government. During the last two years of the project, they were asked to incorporate systematic motivational design into their process. Suzuki (Suzuki and Keller, 1996) developed a simplified approach to motivational design because the full, seven-step model would require too much time for training and implementation. The goal of the simplified approach was to ensure that the teachers would identify key motivational characteristics in the learners, the content area to be taught, and the hardware or software to be used. The teachers then evaluated this information and prescribed tactics based on identified motivational problems. This process helped ensure that teachers avoided the inclusion of excessive numbers of tactics, or tactics derived from their own preferred areas of interest without regard to the characteristics of the students and the situation.

The resulting design process is represented in a matrix (Table 2). In the first row, the designer lists salient characteristics of the learners' overall motivation to learn. The second row contains the designer's judgements about how appealing the learning task will be to the learners. The third and fourth rows ask about learners' expected attitudes toward the medium of instruction and the instructional materials. Each of the entries in these rows has a "plus" or "minus" sign to indicate whether it is a positive or negative motivational characteristic. Based on the information in these first three rows, the motivational designers decide how much motivational support is required and what types of tactics to use. They refer to reference lists of potential tactics (for example Keller and Burkman, 1992; Keller and Suzuki, 1988) and also create their own based on the identified needs.

In this example, the teacher determined that confidence is the only real problem area, and he listed some specific things to deal with it. He also listed some specific tactics for the other categories, but they serve to maintain motivation instead of solving a specific problem.

A benefit of his application of this process was that in his initial motivational plan, before he applied this process, he had a much longer list of tactics that he thought would be exciting and motivational. After doing the analysis and applying various selection criteria that are listed in the training materials on motivational design, he realized that his list of tactics would be too time consuming, and would actually distract from the students' intrinsic interest in the subject as revealed in his analysis. By using the design process, he was able to simplify the motivational design and target it to specific needs.

Table 2. ARCS simplified design matrix: Elective unit on using international e-mail

DESIGN FACTORS	ARCS CATEGORIES			
	Attention	Relevance	Confidence	Satisfaction
LEARNER CHARACTERISTICS	Elective course, High interest (+)	High commitment (+)	Low skills in typing and in conversational English (-)	Newly formed group of students (-), but familiar teacher (+)
LEARNING TASK (Learners' attitudes toward)	New, attractive, adventurous (+)	-High public interest to the Internet (+) -Useful in future (+) -Limited access to computers (-)	-Seems difficult (-) -First exposure (-)	-High applicability of acquired skills (+) -Exciting outcome (+)
MEDIUM: Computer in this lesson (Learners' attitudes toward)	Interesting new use as a networking tool (+)	Familiar as a stand alone learning tool (+)	Unstable network connection may make students worried (-)	Immediate feedback (+)
COURSEWARE CHARACTERISTICS (E-mail software)			English usage (-)	Participatory for every students (+)
MOTIVATIONAL TACTICS FOR THE LESSON	Minimal tactics required: -Emphasize opportunity to communicate worldwide -Demonstrate immediate transmission and response features	Minimal tactics required: -Demonstrate how it extends one's communication capabilities	Necessary to build confidence: -Set objectives cumulatively from low to high -Team teaching with an Assistant English Teacher - Use translation software	Minimal tactics required: Provide reinforcement by receiving messages from "network pals"

An evaluation of the effectiveness of this motivational design process (Suzuki and Keller, 1996) verified that the teachers were able to use the matrix accurately with only a few entries not being placed appropriately, and more than two-thirds felt that it definitely helped them produce a more effective motivational design. Some teachers had difficulties with the analysis phase, which indicates that this is a critical area to address in training people to use the process.

This simplified design process was modified and used in two subsequent projects. The first of these was to develop a prototype of motivationally adaptive computer-based instruction. The

formal motivational design process requires an audience analysis which influences which motivational tactics are included in the learning environment. However, learner motivation changes over time, and in sometimes unpredictable ways. In a classroom or other instructor-led setting, an expert instructor can continuously gauge the audience's motivational condition and make adjustments as appropriate. But in self-directed learning environments, this type of continuous adjustment has not been a feature. Once the instruction has been designed and "packaged," everyone receives the same program, with the exception of limited branching and other learner control options. These options can have a positive effect on motivation, but they do not adequately reflect the range of motivational conditions that characterize learners at different points in time.

It would be possible to include a large number of motivational tactics to cover a broad range of motivational conditions, but this would most likely have a negative effect on motivation and performance. The reason is that when students are motivated to learn, they want to work on highly task-relevant activities. They do not want to be distracted with unnecessary motivational activities. For this reason, it would be nice to have computer or multi-media software that can sense a learner's motivation level and respond adaptively.

Integration into Lesson Planning

However, there has still been a gap in the model with respect to providing guidance for integrating the motivational tactics into a teacher's actual lesson plan. This presentation helps to close this gap by illustrating how motivational strategies and tactics can be incorporated along side an outline of lesson content and instructional activities (Appendix A).

The header of the lesson plan has a place to make notes about the overall sustaining strategy and enhancement strategy for the lesson. The distinction between sustaining and enhancement strategies refers to the degree to which the learners will be motivated by the lesson. If their overall motivation is high, then all that is required of the teacher or designer is to sustain the learners' motivation by using variety in teaching approaches, continuing to use relevant examples, and providing appropriate types of motivating feedback. But, if you suspect that there will be specific motivational challenges, or deficiencies, then it is necessary to plan a motivational approach that will overcome these problems. In the example in Appendix A, fifth and sixth grade students will be engaged in a year-long independent research project. There will be relatively long intervals between class sessions devoted to this project. Therefore, many learners can be expected to have serious problems with relevance and confidence during the year. That is, the learners will have trouble sustaining interest in a project that does not have immediate assignments and feedback, they may have doubts from time to time as to how important the project really is, and they may doubt that they can really do all the work that will be required. Therefore, the teacher has to include an overall strategy, with appropriate tactics, that will counteract these motivational obstacles.

The body of the lesson plan has columns that are fairly typical, even the formats of lesson plans vary. This lesson plan has a unique feature in that it includes a column devoted specifically to motivational planning. It allows one to implement the results of the analysis and design steps in the ARCS planning process (Figure 1, Steps 1 – 7)) by integrating it into the content and instructional strategies of the lesson (Figure 1, Step 8).

Benefits of this type of lesson plan are that it allows one to

- “See” the overall architecture of the lesson
- Check the lesson for balance of content and activities
- Easily check to see if there is variation in approach (that is, that the same pattern of instructional or motivational techniques are not used over and over again)
- Critically review the contents, instructional tactics, and motivational tactics in terms of internal consistency and fidelity to the lesson and course objectives, and
- Obtain reviews and feedback from other people who can easily review the structure and content of the lesson.

Summary

There has never been any doubt about the importance of learner motivation, but there have been difficulties obtaining methods and approaches for systematically predicting and influencing motivation. Traditionally we have relied on compilations of personal experiences by successful teachers and listings of results from academic studies. The ARCS model resulted from reviews and integration of research literature and successful practices. It has been validated in numerous research studies (for example, Means, Jonassen, & Dwyer, 1997; Small & Gluck, 1994; and Visser & Keller, 1990) and it is being used in many different countries and cultures in the world. However, it does not offer simple, prescriptive solutions to motivational problems. It offers problem solving approach that leads one to solutions appropriate for a given situation. Furthermore, it is an evolving model. Just as this paper introduces the lesson planning template for the first time, there are many areas of research and development to be undertaken that will continue to help this model be more effective or lead to the development of alternative approaches. The goal of the model, like the goal of many educators, is to assist in helping learners want to learn and develop in ways that helps them build satisfying lives that contribute something positive to their world.

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Appendix A: Detailed Lesson Guide

<p>1. Course Title: English (5th & 6th grade special project)</p>	<p>4. Lesson Motivational Strategy Overview</p> <p>a. Sustaining strategy: The overall assignment will be motivating, but it will be necessary to use a variety of approaches to sustain interest and high levels of sharing results to keep them interested and productive.</p> <p>b. Enhancement strategy: They will have trouble seeing the relevance of this assignment at some points, and their confidence will waver during the extended time required to complete all parts of the project. Therefore, the overall enhancement strategy is to (1) organize assignments on an increasing level of difficulty from knowledge and comprehension at the beginning to synthesis and evaluation at the end, (2) provide encouragement at points in the process that you know to be challenging or discouraging, (3) provide timely, positive feedback at every interval that an assignment is completed.</p>
<p>2. Module Title: Independent Project Development</p> <p>Module Objective: Plan, conduct, and report the results of an independent research project.</p>	
<p>3. Lesson Title: 1. Identifying a research topic and goal.</p> <p>Lesson Terminal Learning Objective (TLO): Learners will obtain background information in their areas of interest and define their topic and objective.</p> <p>NOTE: This is the first of three lessons pertaining to this independent project. Each lesson covers several class meetings spread at intervals during the year-long project.</p>	
<p>5. Primary Delivery System: Classroom meetings from time to time combined with email or snail mail to sustain interest and progress.</p>	

6. Sequenced Intermediate Learning Objectives (ILOs) and TLOs	7. Content Outline	8. Instructional Tactics (Activities, Self-Checks, Tests)	9. Motivational Tactics (Activities) Classify as A, R, C, S or Combo	10. Materials	11. Time Rqd.
<p>1.1 Identify a general area of interest</p>	<p>Purpose and approach of the independent research project.</p> <p>Examples of topics from past classes.</p> <p>Things to consider in selecting a topic of interest.</p> <p>Things to consider in selecting a partner or working independently on this project.</p>	<p>Ask a series of questions about how people obtain information about things they are interested in.</p> <p>Explain the project to them.</p> <p>Give examples of topics chosen by learners in previous classes.</p> <p>Then ask how they would go about identifying an area that they want to know more about.</p> <p>Allow them to select a partner if they wish. They can change their decisions at a later time.</p>	<p>Use examples from everyday life, such as news reporters, authors, and people who want to know more about cars, home construction, or anything else. (A,R)</p> <p>Compare independent research to activities such as exploring and other types of adventures. (A)</p> <p>Shift interaction from student-teacher to student-student by permitting learners to work as partners on the project. (A,C)</p>	<p>OHP of previous topics.</p>	<p>Class 1: 20 min</p>

6. Sequenced Intermediate Learning Objectives (ILOs) and TLOs	7. Content Outline	8. Instructional Tactics (Activities, Self-Checks, Tests)	9. Motivational Tactics (Activities) Classify as A, R, C, S or Combo	10. Materials	11. Time Rqd.
1.2 Gather background information in the area of interest.	Sources of information that are readily available to these learners. Guidelines on how to gather material. How much and what kinds of things they are to gather for this assignment.	Explain the guidelines for gathering information. Explain what kinds of materials they must gather before making their final topic selection.	Ask what they do when they want to know more about something, even something like a new game or toy. (A)	OHP: Gathering information Handout: Gathering information	Class 1: 30 min
1.3 Prepare a topic description.	Characteristics and elements of a topic description. Examples from a variety of different topic areas.	Explain what goes into a good topic statement. Present the examples. Have learners practice writing some descriptions. Have some of the individuals or groups share theirs with the rest of the class. Give feedback.	Show examples of previous projects (A, C) Permit learners to choose any topic they wish (A, R) and develop it in any medium they wish. (C) Ask learners to relate the assignment to their future goals. (R)	Examples of previous projects. Handout: Requirements for a good goal statement	Class 2: 20 min
1.4 Prepare a research plan.	The elements of a good research plan including activities, methods, and deadlines.	Present the elements of a research plan. Ask how this is similar to the gathering information they already did (it's the same except more formal and focused). Ask them to prepare drafts of their research plans, which they will finish as homework.	Provide meaningful alternative methods for accomplishing their goals: Let each small group brainstorm various methods they could use to approach their study and project. (R).	Handout: Guidelines for, and example, of, a research plan	Class 2: 30 min

6. Sequenced Intermediate Learning Objectives (ILOs) and TLOs	7. Content Outline	8. Instructional Tactics (Activities, Self-Checks, Tests)	9. Motivational Tactics (Activities) Classify as A, R, C, S or Combo	10. Materials	11. Time Rqd.
1.5 Accept individual responsibility for independent learning decisions and deadlines while working cooperatively with one or more partners.	How to plan for success, including such things as setting and keeping deadlines, anticipating obstacles and overcoming them, and communicating with your partner.	<p>Ask the learners why they sometimes don't finish what they start, or they they don't get things done on time. List the answers on the board.</p> <p>Ask them if they can think of things that will make this assignment more difficult to do on time than normal classroom assignments and homework. List the answers on the board.</p> <p>Have learners review their research plans to see if they want to modify deadlines and responsibilities to be more realistic.</p>	<p>Explain what experience and research has shown that makes it difficult to stay on schedule and finish this kind of independent work. (C)</p> <p>Help learners set challenging but realistic goals by reviewing their plans and providing detailed feedback. (C)</p> <p>Provide self-evaluation tools that they will use at designated intervals in the project. (C)</p>	Handouts: Self-evaluation tools.	Class 3: 20 min
1.6 Use varied forms of expression and media to communicate ideas.	How to prepare both written and oral reports of their topics and research plans.	<p>Present guidelines for how to prepare and present their topic descriptions and research plans to the rest of the class.</p> <p>Provide examples.</p> <p>Review written reports and presentation outlines before they do their presentations.</p>	<p>Give detailed attention to each student/group at intervals during the project. (S)</p> <p>Give meaningful positive feedback every time an individual or group does something good, and give corrective, not critical feedback to help them improve. (S, C)</p> <p>When doing these presentations, let the groups share any "tips for success" that they have come up with, and that might help everyone as they go into the next phase of the project. (S)</p>		<p>Class 3: 30 min (for planning)</p> <p>Class 4: 50 min (for presentations)</p>