

RUNNING HEAD: CONCEPT KEYS

Utilizing Educational Theories and Technological Advancements to Teach

“Soft Skills” to Today’s Students

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NCA, February 2005

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### Abstract

This paper examines an innovative method of teaching basic skills necessary to effectively produce and receive messages while reducing the potential for misunderstandings. As educators, developing such methods is paramount to student success. Likewise, success beyond college depends heavily on basic speaking and listening skills. Whether a student continues within academia or enters the workforce, s/he must possess the skills necessary to communicate in a competent fashion. This paper will first examine the theoretical distinction between skills and competence as well as research in the areas of memory and cognition. I then propose a method grounded on these precepts that also utilize e-learning technology to bring micro-lessons into the learners environment. Concept Keys leverages the established educational concepts of chunking, priming, and active learning into a learning support system that enables students to integrate information into their memory and into their skill base. Example exercises are also presented as well as a call for further research.

Keywords: Competence, Communication Instruction, Communication Skills, Listening Skills, Chunking, Priming

## Utilizing Educational Theories and Technological Advancements to Teach “Soft Skills” to Today’s Students

Educators within all fields face special challenges when attempting to teach what are traditionally labeled “soft skills” in the literature. These non-technical abilities include competencies such as communication, listening, writing, and critical thinking and have been shown to increase occupational (Evers & Rush, 1996; Zorn & Violanti, 1996), relational (Burlinson, 1995; Flora & Segrin, 1999), and personal (Segrin & Givertz, 2003) success. However, students often place barriers to learning such skills. Similarly, many programs, judged by their lack of core classes devoted to this sort of training, do not take seriously the impact these skills have on student development and marketability after college. Part of the reason is this label of “soft.” While on the surface this may seem immaterial, it has at least the chance to elicit indifferent attitudes in the minds of our students which can impede learning vital skills. However, another consideration is that our educational paradigm may need to shift to a more blended approach. This blended approach has shown immense promise in training adult learners (Bonk, 2001; Powers, Bodie, & Fitch-Hauser, 2004) and is seen by many to be the next shift in training and development of today’s top managers and employees (e.g., Georges, 1996).

The notion of blending online materials with face-to-face training sessions is not actually new in the classic sense. Students have been required to read books and articles for a long time prior to attending a lecture. However, teaching specific skill sets necessitates that information be broken down into manageable units of information. Take the skills necessary to communicate in a competent fashion. Communicative and listening competence involves a range of cognitions and behaviors that must be recalled and preformed in multiple situations on a daily basis. The

substantial amount of time spent engaged in communicative acts on a daily basis (Wolvin & Coakley, 1996) should be enough to continually motivate educators to develop effective teaching strategies that aid in the development of these skills. But what is the best way to prepare today's student to become a capable speaker and listener? This paper attempts to answer this question by offering a method grounded in the educational theories of chunking and priming and utilizing web-based technology to enhance active learning. Finally, instructors are encouraged to adopt the programs to their own classroom setting while continuing to improve upon their effectiveness, reach, and relevance to a multitude of essential skill bases.

#### Moving Beyond the Skill/Competence Dichotomy: A Reconceptualization via Active Learning

An ongoing debate within the discipline of communication education is whether one can be taught how to produce and receive messages effectively (DeWitt-Brinks & Rhodes, 1992) and, if so, what is the best method for achieving this goal (Duran & Zakahi, 1987; Janusik, 2002; Watt, 1993). A main component of this debate is the recognition that simply having a cognitive skill base will not necessarily enable an individual to display an appropriate level of behavioral competence (Argyle, 1967; McCroskey, 1982). Skill refers to the communicator's ability to perform a certain behavior, competence is the actual demonstration of an appropriate communicative act in a given situation (McCroskey, 1982). While discernment between competence and performance may be theoretically necessary, it is not always pragmatic. Research using Boyer's (1990) notion of the scholarship of teaching and learning shows that faculty should "expect students to move beyond foundational knowledge and develop higher-order skills" (Cottrell & Jones, 2003, p. 179). A responsible instructor will design courses in ways that facilitate an active learning environment. Such an environment is "learning-centered"

as opposed to teacher- or student-centered (Gravett & Petersen, 2002) and reaches students through innovative teaching methods that enable them to own the material.

As explicated in the following section, the most viable way to instill behavioral change and resulting competence is to use innovative teaching techniques that establish a base level of skills and employ novel testing methods to guide students in relating the information to their inherently different lives and overall ways of communicating. If message production and reception training is going to meet the needs of students, we need to develop innovative means of both delivering the message and inviting the active participation of the student. This system should be based on sound knowledge of how we learn. The concepts of chunking and priming provide an excellent theoretical frame for an innovative learning system.

#### Applying Chunking to Skill Building

The concept of chunking is largely attributed to the work of Miller (1956) who distinguished between bits and chunks of information. Chunking is the process of organizing and grouping bits of information into familiar units or chunks. The ability to chunk information helps an individual remember more and gives a means of accessing the information that is ultimately stored in his or her memory. More importantly, chunking increases “the amount of information we can deal with” (p. 95). Miller also suggests that we recode information constantly in an effort to assimilate new information with current knowledge. Therefore, the process of chunking also seems to serve as a mechanism for reinforcing information. For instance, as we learn new information, if it sounds familiar or if it fits into an existing category, we tend to remember and relate the new information to the existing category, creating powerful connections within the chunk (Gobet & Simon, 1996; Higham, 1997).

Chunking serves as both a triggering device and as a code-building device for our memory. The *triggering aspect* of chunks relies on the strength of a chunk or group of related chunks. Chunks are arranged in a hierarchical fashion, so the most memorable items will consist of information that is most relevant to the individual attempting to learn (Servan-Schreiber & Anderson, 1990). *Code-building* is often accomplished through replication of chunks or related information that allows the participant to recall chunks for later use. As students build a system of codes (i.e. chunks), patterns begin to emerge which enable them to link related chunks and eventually build larger and larger stores of information (Koch & Hoffmann, 2000). Consequently, students are able to develop skills that are more complex than simple rules yet straightforward enough to be stored in memory enhancing expertise in a given competency.

Chase and Simon (1973) and Gobet and Simon (1996) report that three areas of expertise are important in skill development: pattern recognition, selective searching, and rich knowledge in the domain of expertise. In looking at the performance of master chess players, two studies (Gobet & Simon, 1996, 1998) concluded that professional chess players seem to rely on chunking to categorize their knowledge and to access information. They seem to use their catalogue of information to look ahead and make strategic choices about what move to make next. It stands to reason that this concept can be extended to communication acts. If given a method of chunking information into useful categories, communicators should be able to build a knowledge base of skills and ultimately be able to access this information to make decisions about what type of skill they need to use in a given situation. Such a method would give students information that could be chunked as well as suggestions for ways to create these chunks. In addition, the system would build the store of knowledge about producing and receiving information. Finally, the system would provide a means of accessing the knowledge in a

meaningful way. Just as chess players seem to store chunks about patterns of pieces in their long-term memory, students need to store chunks about communication strategies and techniques in their long-term memory.

Another element that must be included in any effective instructional effort is repetition. Not only are our memories organized and stored in chunks, they are reinforced through repeated exposure to an idea, concept or skill. In one regard chunking provides an avenue for repetition insofar as the chunks are built as bits of information and compressed or integrated into a chunk. This is particularly evident in observations of a variety of ritualistic behaviors, such as many compulsive behaviors (Graybiel, 1998). Although message production and reception are not ritualistic behaviors, it stands to reason that we engage in these acts often enough (Wolvin & Coakley, 1996) that many of the skills considered necessary for communicative competence are performed in chunks. As we learn more skills, we seem to build cognitive and neural sequences that help us use these skills.

Further research in the area of learning supports this conclusion. In three experiments on sequence learning, Koch and Hoffmann (2000) found clear support for the idea that sequence learning can be thought of as a chunking process. Students who attempt to learn a series of related concepts employ a process that Koch and Hoffman labeled “relational chunking.” By chunking information that is similar into large sequences of information, skills can be taught and competence in a certain area can be improved. Developing skills or sets of skills, such as those evidenced by effective communicators and listeners, can be thought of as a learning process in which the steps and concepts are presented in a sequential pattern. Once students learn the pattern, the concern shifts to how they can recall the concept or pattern for use when they have

so much information in so many chunks stored in memory. Priming theory responds to this concern.

### *Using Priming to Recall Chunks*

Priming theory focuses on how information is retrieved from memory. Priming, viewed as spreading activation, works to retrieve information from memory when a priming stimulus is presented and sets off a chain of events in which one node of a concept is linked to another (Doshier & Rosedale, 1989; Ratcliff & McKoon, 1988). Ratcliff and McKoon (1988) suggest that:

the prime and the target concept form a compound cue and that this compound cue interacts with memory to produce a value of resonance, goodness of match, or familiarity that is determined by associations in long-term memory between the prime and target (405).

Therefore, if the prime is directly related to the target concept, the individual will have an easier time recalling the concept as a chunk of information. This chunk of information, as related to communicative competence, should include both the appropriate behavior and the situation in which the set of behaviors should be used. If a training or instructional system could build such a pattern of association and provide a convenient chunking mechanism that was closely connected to effective communication skills, this information should be easy to access by triggering the associations.

### Beyond Chunking and Priming: Utilizing Personal Relevance and Web-Based Technology

One challenge communication instructors face is continually finding new and innovative ways to teach skills as important as speaking and listening. Strategic deviations from the formal classroom setting (i.e., lecture focused instruction) can incorporate a sense of practicality and fun, which can enhance learning (e.g., Gravett & Petersen, 2002). For instance, enhancing the relevance of material can motivate students to fuse new information with present knowledge forming a more thorough understanding of the subject at hand. Thomas and Busby (2003, p. 228) conclude that “self-managed learning” can foster independent critical thinking and increase competence. Likewise when teaching listening, Cost, Bishop, and Anderson (1992, p. 42) “encouraged [students] to explore and understand what words, phrases, or topics get them emotionally involved; what their listening strengths and weaknesses are; and how to recognize what motivates other people to speak and behave as they do.” By making listening training personally relevant, teachers help students improve their listening skills. The innovative teaching program discussed below uses self-managed learning and personal reflection which has been shown to increase satisfaction with learning.

The pervasiveness of technology presents another challenge to relevance. The reality of student reliance on technology for all aspects of life including education gives instructors new tools that can enhance student learning and participation. Unfortunately, aside from distance education, it seems as if technology in the classroom consists of a few PowerPoint slides and the overuse of video clips. There are much richer resources available that we can tap into to improve students’ learning experience. A survey of secondary education instructors conducted by Bonk (2001, p. 8) found that “a lack of interest in the Web for teaching was not an obstacle for these respondents”. Instead, it was a lack of online support and an overall reluctance to adopt online

resources due to a lack of training. This finding suggests we need to develop online methods that can be incorporated into classes with a minimum of training.

### Concept Keys: A Blended Approach to Enhanced Learning

The Concept Keys system (Powers, 2003) is a focused approach to classroom interaction grounded in educational theory (i.e., chunking, priming, active learning, etc.) that blends web-based education with face-to-face instructor direction and support. Concept Keys provides students with small bits of information over a long period of time culminating in a vast store of knowledge about a set of skills and how to perform these skills in specified contexts. Along with daily commentary, or keys, this method has students rate these keys according to personal relevance. Additional classroom activities are also presented which add to the student-teacher interaction and increase the chances of information retention and skill acquisition. The complete instructional system includes the following elements:

- 50 daily gentle reminders by email of the Program containing a live link to the website
- 50 daily Keys to Success at their CK website account, one each school day
- 50 daily micro-lessons expanding on the Keys at their CK website account
- 50 daily student interactions within the Food For Thought question area that take less than 5 minutes to process but consists of four questions for a total of 200 student engagement and learning actions
- 10 weekly student retention quizzes adds another 50 employee engagement and learning actions
- 10 weekly student self-selection of the Most Important Key from the previous 5 Keys adds 10 more engagement and learning actions
- 10 weekly student self-determinations of how to apply the Most Important Key immediately right in the learning environment adds 10 more engagement and learning actions
- Individual student continuous access to all previous material and the continuing time lag analysis of their daily engagement in the program
- Individual student downloading of all the above material at the conclusion of the program

- Individual Certification Examination

Teachers receive the following:

- Program Reports of all participant responses and time lag analysis of daily engagement for inclusion as part of the student evaluation. This information can be subjected to further group calculations based upon established demographics
- Instructors Manual containing instructional options and activities

### *A Chunking Theory Application to Improve Communicative Quality*

Concept Keys (CK) is an innovative approach to teaching and learning communication skills that leverages the concepts of chunking and priming plus the added benefit of learning support systems within the more traditional learning model to provide greater opportunity for teachers and trainers to impact the quality of participant learning outcomes (Powers, 2003). CK is based on the notion that small units of information about complex concepts that are systematically delivered into the most appropriate learning environment within a meaningful support system provides the greatest opportunity for learners to acquire, retain, apply, and improve communication skills<sup>1</sup>.

### *How the Keys to Effective and Competent Actions Work*

Being considered competent in any interaction is largely based on ones communication behaviors. These behaviors are based on the skills one displays in any given interaction. Skills in general are based upon two fundamental components: 1) Information acquisition and retention about the cognitive processing function and 2) Information acquisition and retention about the behavioral options and conditions. Each of these components contains interrelated “chunks” that are identified as Keys to the Concept under question (e.g., message production, message reception, customer service, leadership). These Keys are collections of bits of information (both cognitive and behavioral) that, when taken together, are more significant and have a greater impact than when treated in isolation. While it is true that each “bit” consists of smaller units of

information, the learning outcomes are not advantaged by such minute knowledge but rather by solid stores of related bits.

CK has developed 50 Keys to success in the areas of effective communication and effective listening. Each Key is a brief statement reflecting a specific collectivity of bits leading to enhanced skill in the desired area. The brevity of each Key allows learners the greatest opportunity for understanding, retention, and cross application at both the cognitive and behavioral levels. The CK system involves delivery of only one Key per day via an e-learning portal accessed directly from the learner's preferred learning environment. Each Key is followed by four brief paragraphs, usually of no more than 2 or 3 sentences, the content of which reflects varying degrees and combinations of explanation and motivation. Explanation is often in the form of more specific description of one or more of the bits associated with the Key or contexts within which the Key may be identified more easily. Motivation consists of varying combinations of descriptions of negative outcomes from the non-use of the Key and/or positive outcomes from the use of the Key. (Sample Keys can be accessed via [www.conceptkeys.com](http://www.conceptkeys.com).)

Some of the Keys are more representative of cognitions while others are more representative of behavioral options. As previously argued, both approaches are essential to the ultimate improvement of an individual's skill. Without internalized knowledge of information processing options as well as behavioral options, learners will not have choices from which to draw if attempting to communicate more effectively when such an effort is dictated by the context and situation. Furthermore, some Keys are repetitive in nature and cross over potential applications. The connotative aspect of meaning via language and the distinctive differences between contexts allow both internal repetition and cross application of imagery (priming) across Keys.

Thus, the CK learning system contains a number of built-in learning factors designed to enhance the learning process: 1) Bits of Information, 2) Bite-sized Keys (Chunks), 3) Explanation, 4) Motivation, 5) Cognitive information, 6) Behavioral information, 7) Repetition, and 8) Multi-context imagery (priming). However, the complete CK learning system expands the potential for positive learner outcomes even further through the easy integration of the following aspects of learning support: 1) Information delivery in learner's application environment, 2) Participation in overt repetition of Keys over time, 3) Responses to Questions about the value of each Key, 4) Participation in weekly retention assessment activities, 5) Self-selection of weekly Most Important Key with stipulated application plan, 6) Participation in enjoyable connecting events, 7) Participation in Team-learning activities, 8) Complete clarity of exact expectations, 9) Integration of learner self-selection of most important information over the complete set of 50 Keys in each area and 10) Certification via an online examination.

This method provides the necessary support for learning. Students meet on a regular basis in class and the instructor serves the function of Learning System Coordinator. Such a dialogic approach has been shown to improve learning outcomes when employed in a similar way via learning tasks (Gravett & Petersen, 2002). There are many options available to the instructor, some more appropriate in one level of learning than another. A complete Instructor Manual detailing multiple options is available for all who request this information at the CK website. The following case study will provide a foundational understanding of one application of the CK learning system.

### *Procedures*

Students (N = 79) were informed of the Keys project as a supplemental part of the learning process in a class that would allow them to improve their skill in *Communicating*

*Clearly* while the class focused upon larger traditional content issues in the *Business and Professional Communication* course. Keys were scheduled to avoid delivery on Spring Break. Student teams were formed and leaders selected. The leaders (referred to as the Class Advisory Group) met with the teacher over lunch to discuss the project and to select the most appropriate support activities. In this case, each student was expected to send an email to the teacher before noon on Mondays describing which of the preceding weeks 5 Keys was the Most Important Key (MIK) relative to the individual's view of self and projected future needs. Thus at the end of the term, each student would have self-selected 10 Keys as MIKs on a personal basis. Students were informed that they would be tested over the Keys at the conclusion of the project and the expectation was that they would retain each of the 50 Keys exactly and in the exact order in which they arrived. One point would be awarded for each MIK recalled correctly and ½ point for each remaining Key with ½ point deduction for each sequence error. The project was worth 30 points within the course grading scale of 300 points. Two bonus points were awarded to all students who correctly remembered 49 or 50 of the Keys.

Furthermore, each of the five teams would have an opportunity to participate in a weekly contest designed to help the class remember each Key. Leaders determined the nature of the contest each week (i.e., skits, anagrams, poetry, song lyrics, anything goes, etc.). The rules were that the contest had to be fun, the focus had to be helping everyone to remember the team's assigned Key, each team would have no more than 1 minute of class time in the contest, the class would vote on which team did the best job (teams were not allowed to vote for themselves), and the members of the winning team identified by the leader as having participated meaningfully in the contest would all receive 1 bonus point toward determining their final grade. Finally, the

Keys were discussed in class following each contest for a relatively brief period prior to discussing the regular class material.

### *Results*

Feedback from students was overwhelmingly positive (4.8 average on a 5.0 semantic differential using the descriptors of Not A Valuable Learning Experience and Definitely A Valuable Learning Experience). As expected, students were able to assess Concept Keys along the areas previously discussed. For instance, the Communicating Clearly program was seen by one student as helping him and the individuals with whom he communicates.

I felt that the concept keys were very informative; they brought up ideas of how you can correct your clarity in communication and who could possibly help you. Communicating clearly is something I have learned from these key points. They had a good layout of how you correct yourself as well. It not only helps me, but it also helps those around me.

Other positive remarks centered on the personal relevance and unique approach to obtaining this fundamental purpose of the CK program.

Concept keys, helps the student in two very important ways. The first is through the message. Giving concept keys allows the student to learn and be interested in another way than is not usual. It is not an overbearing professor yacking [sic] off all this information so that he can get his paycheck at the end of the week. It allows students to take the initiative to decide and then act on whether they want to learn more from the class or not. The second important way to improvement is the actual process. Over the internet is a very creative way to send school work . I believe it could also include a good way of adding a new adventure into the school process. In other words, this may give changes to the unchangeable cycle the school still consists of.

From this and similar comments, students felt as if the CK learning experience heightened their performance in the class. Similarly, by being exposed to class content several times throughout the semester, students felt as if they were provided with more opportunities to learn and, consequently, with more opportunities for priming.

Concept Keys was an interesting concept. The keys themselves were somewhat beneficial. They mainly reinforced issues which we discussed in class. This was not the part I found beneficial however. The keys were sent to me through the e-mail at one of the oddest times. I believe this was helpful because it was like having mini reviews 2 to 3 times a week. I find that the more I am exposed to a subject in small doses the more I will retain.

All responses were not positive, however. Two complaint areas in response to the question, “What did you find most negative about the CK learning project?” were (1) the need to remember all 50 Keys and (2) the simplicity of the Keys. Even so, of the 79 students in the class, 62 remembered either 49 or 50 of the Keys, 10 remembered between 45 and 48, 5 remembered between 40 and 44 Keys, and 2 remembered 8 Keys.

### Conclusion

The CK blended-learning system has great potential to enhance learner skill outcomes in that the system helps students/trainees build a code for effective communication and effective listening. As Gobet and Simon (1996) suggest, this type of code building develops a rich expertise in an area and the ability to recognize patterns among the information. Because the separate Concept Keys provide reinforcement and repetition of basic concepts, the student is able to build chunks of information related to effective behavior and is better able to access this information in memory. CK also incorporates the principle of priming in its structure. One way that CK uses priming is by delivering stimuli (Keys) that help students access their chunks. In

addition CK uses case studies and in-class exercises to build an association between the keys and best practices communication behaviors. This type of training builds a system of associations that can be readily accessed or primed when the student faces a similar situation. Moreover, the recent technological evolution has opened a new door for teachers to impact the quality of education for their students. CK provides an exciting, innovative means of incorporating technology into instruction and skill development.

It should be noted that more research is needed to further validate these initial findings. Experiments in which similar classes are either engaged or not engaged with this program would be a welcomed invitation. However, it is important that we do not discount the results provided above just because the CK method is new. For instance, new textbooks and activities devised by teachers are not necessarily put through such scrutiny. In fact, our evaluation system, at least at the college level, is based on student perception. Furthermore, our assessment system is based on student retention, of which CK is also based. Further validation in terms of the longitudinal effects of such a system (i.e., can student's retain Keys over a long period of time) is also warranted. However, an outline of an innovative way to teach skills deemed necessary in everyday life has been provided.

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Notes:

<sup>1</sup> Other programs are available and have been proven successful in both academic and industry settings. New programs are currently in development and future projects are invited.