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A REVISED FEEDBACK MODEL FOR TASK AND SELF-REGULATED LEARNING

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ABSTRACT

Feedback plays a central role in a wide range of learning models and theories. When students engage in active learning processes, such as written case analyses and projects, presentations, and discussions, instructors have the opportunity to provide them with constructive developmental feedback on their progress toward achieving course learning goals. Instructors also have the opportunity to give them feedback on the way they learn, or self-regulated learning. This article presents an integrated model of feedback for both course content and self-regulated learning, showing where difficulties occur in the progress toward achieving the learning goals through the feedback.

INTRODUCTION

Feedback is an integral part of learning processes. It provides the opportunity for incremental adjustment and/or expansion of one's knowledge base and understanding. Behaviorist learning models, cognitive learning models, social learning models, and experiential learning models (Jarvis, Holford, & Griffin, 1998) all accord feedback a prominent place in the learning processes they offer.

The research on feedback is extensive and rich (see, for example, Ashford & Cummings, 1983; Butler & Winne, 1995; Kluger & DeNisi, 1996; Juwah, McFarlane-Dick, Matthews, Nicol, & Ross, 2004). The contexts for this research are primarily educational and organizational. The foci of the research are task feedback for task accomplishment, cognitive feedback for self-regulated learning, the character and functions of the feedback given, the learning activities that afford the opportunity for feedback, the activities of the one seeking feedback, whether by monitoring or by inquiry, and the reactions of the receiver of feedback to the feedback.

Our intended audience for this paper is faculty in higher education. The primary purposes of this paper are: (1) to briefly review the feedback literature; (2) to expand and revise a model of feedback for task and self-regulated learning developed by Butler & Winne (1995); (3) to build awareness of the value of using learning activities and processes that offer the opportunity for feedback to enhance student learning of both course content tasks and self-regulated learning, that is, the development of the student's ability to learn about learning; (4) to offer faculty a range of activities that use feedback to enhance both task learning and self-regulated learning; and (5) to offer ways to enhance the feedback giving skills of faculty and students in higher education. We would like to conclude with some thoughts on directions for future development of the revised model we present here.

FEEDBACK: A BRIEF OVERVIEW

The research and literature on feedback generally agree on a number of characteristics of feedback. First, feedback is information that is available in the environment to individuals. It is information that indicates how well individuals are meeting their goals. This includes referent information on the use of appropriate behaviors and appraisal information on how well the individual is doing (Carlson, 1978; Ashford & Cummings, 1983). Second, the information is both perceived and interpreted by the receiver as well as the sender when the sender is another relevant individual. Third, the sources of feedback are the task itself, the individual doing the task, and relevant others, such as the instructor and course peers. Fourth, there is feedback on the task, commonly called task or outcome feedback, and there is feedback on the processes of learning, commonly called cognitive feedback (Butler & Winne, 1995). And fifth, individuals both monitor their environment for feedback signals on how well they are doing in a particular situation and actively seek or inquire for feedback from others on how well they are doing (Ashford & Cummings, 1983; Butler & Winne, 1995). Ashford & Cummings (1983) indicate that “No sense of mastery is possible without the availability and use of this feedback information. Cues from the task itself (internal cues) and from others (external cues) provide the information necessary to make judgements about competence. (p.375).”

The dominant research on feedback is cognitive in character and focuses primarily on task or outcome feedback, particularly in the educational setting (Butler & Winne, 1995). The concerns there are with the timeliness, the specificity, the descriptiveness, and the usability and amount of feedback given by the instructor in learning activities that offer the opportunity to generate feedback. The general conclusion (Butler & Winne, 1995; Kluger & DeNisi, 1996) is that specific task feedback, when offered in a timely and usable manner so that the student has the opportunity to use the feedback to modify the next effort in the task, enhances both the performance of the task and the long term effectiveness of the learning. Ample attention has also been given to the types of activities that offer the opportunities for feedback-giving by the instructor and/or the student’s peers. On the other hand, Ashford & Cummings (1983) propose that, where situations change quickly or when there is little or no agreement on what constitutes the relevant criteria for effective performance, feedback is not very valuable.

Research on feedback for self-regulated learning, on the other hand, is very much the exception (Carlson, 1978; Butler & Winne, 1995). Little attention has been given to how the task feedback research might apply to self-regulation and the types of activities that can generate opportunities for feedback on self-regulation. Butler & Winne (1995) are an exception. Their extensive and well-crafted review of the feedback literature and research sought to expand the use of that research in general to the phenomenon of self-regulation. They started with a self-regulation model (See Figure 1) from Kuhl & Goschke (1994) and examined the feedback research areas they believed were applicable to self-regulated learning. They concluded by proposing that faculty take the responsibility not only for giving more task-related feedback to students to enhance content domain knowledge but also for initiating feedback on how the students learn to improve their self-regulation of learning.

In the broader sense, the feedback literature and research are integral to the different learning models and theories available. Feedback plays a key role in behaviorist and cybernetic models of learning. The very strong focus of almost all of the feedback research is cognitive in character, connecting to cognitive models of learning. In social learning models (Bandura, 1997; Vygotsky, 1978, 1986; Wink & Putney, 2002), the ideas of discrepancy production and reduction, proactive and reactive control, negative feedback loops, relational learning, and practice performance before competence in the presence of more competent teachers revolve around the criticality of feedback. Experiential learning models such as the Kolb (1984) experiential learning cycle and conversational learning (Baker, Jensen & Kolb, 2002) propose the value of concrete experience, reflective observation, abstract conceptualization, and active experimentation, then starting the cycle again, also reinforce the value of feedback for learning. Kolb discusses the importance of goal-directed feedback, learning-directed feedback, and consciousness-directed feedback. Liberation models of learning (Freire, 1970, 1973; Freire & Faundez, 1989; hooks, 1994), with their emphasis on building on the real life experiences of marginalized peoples, in context and in relationship with each other, give feedback a significant role in learning. Finally, models that focus on adult learning (Merriam & Caffarella, 1999) and team-based learning (Michaelsen, Knight, & Fink, 2002) also give feedback a fundamental place in learning processes.

EXTENDING THE BUTLER AND WINNE (1995) MODEL

Butler & Winne (1995) started with the self-regulated learning model (Figure 1 – page 80) offered by Kuhl & Goschke (1994). Their extensive and insightful review of the research and literature on both task feedback and self-regulated learning feedback provided a solid basis for revising the visual model from which they started. However, they stopped short of presenting a revised visual model. There are also some additional citations that can add richness to their work.

We would like to use their work as well as the work of several others on feedback and create that new visual model (Figure 2 – page 81). Furthermore, we would like to distill their efforts into a practical and useable model for faculty that emphasizes the importance of both task feedback and self-regulated learning feedback in the classroom, suggesting learning activities that lend themselves to the use of both types of feedback.

We would also like to draw on Juwah et al (2004) to reinforce this revised model. Juwah et al (2004, p.4) pose three conditions necessary to allow students to benefit from feedback.

- They possess a concept of the goal/standard or reference level being aimed for.
- They can compare the actual level of performance with that of the goal/standard.
- They can engage in appropriate action which leads to some closure of the gap.

To those ends, Juwah et al (2004) recommend seven principles for effective feedback practice.

- It facilitates the development of self-assessment (reflection) in learning.
- It encourages teacher and peer dialogue around learning.
- It helps clarify what good performance is (goals, criteria, standards).
- It provides opportunities to close the gap between current and desired performance.
- It delivers high quality information to students about their learning.

- It encourages positive motivational beliefs and self-esteem.
- It provides information to teachers that can be used to help shape teaching.

We will address various aspects of the first six in this section and the next.

The Characteristics of Good Feedback

Butler & Winne (1995) report that the most common type of feedback research is on the characteristics of feedback given for task or domain knowledge. That research says that the timing, amount of information, and the type of information presented in task feedback have the most positive impact on student learning. We would like to extend this list of feedback characteristics by drawing on Hunsaker (1983) and Michaelsen & Schultheiss (1988). Hunsaker offers five suggestions for providing constructive feedback.

- Focus the feedback on the behavior rather than the person.
- Focus the feedback on description rather than judgement.
- Focus the feedback on behavior related to a specific situation rather than an abstract situation.
- Focus the feedback on the exploration of alternate behaviors rather than advice, answers, or solutions.
- Focus feedback on the amount of information that the person receiving it can use rather than the amount you might like to give.

Michaelsen & Schultheiss offer six recommendations for helpful feedback.

- Helpful feedback is descriptive, not evaluative.
- Helpful feedback is specific, not general.
- Helpful feedback is expressed in terms relevant to the self-perceived needs of the receiver.
- Helpful feedback is timely and in context.
- Helpful feedback is desired by the receiver, not imposed on him/her.
- Helpful feedback is usable and concerned with behavior over which the receiver has control.

The feedback type dimension from Butler & Winne is common to both lists while the timing and amount dimensions appear in the Michaelsen & Schultheiss and the Hunsaker lists, respectively.

TABLE A
The Characteristics of Useful Feedback

It should be **Descriptive**, not evaluative.
It should be **Specific**, not general.
It should be **Timely**, and in context of the activity.
It should be **Relevant** to the specific situation and receiver.
It should be **Usable** for action the receiver controls.
It should be **Sufficient in Amount**, not overwhelming.
It should be **Desired**, not imposed.
It should be **Explorative** of alternatives.
It should be **Well-Framed**, that is, supportive and respectful.

Sources: Hunsaker, 1983; Michaelsen & Schultheiss, 1988.

We have found that there are eight distinct characteristics between Hunsaker and Michaelsen & Schultheiss (Table A). We also have added one more that focuses on the framing of the feedback so that it is supportive and respectful.

The last characteristic on Framing draws on Darwall (1977), Diller (1993, 1996), Boyd (1993), and Applebaum (1996) who encourage faculty to exercise both recognition respect and appraisal respect when interacting with and giving feedback to students. Recognition respect is respect that recognizes the students as individuals and promotes the well-being of each student. It enhances the dignity of the student and is accorded to all students. Appraisal respect is given to a student for the degree to which the student develops, as a result of his or her own efforts, the knowledge, skills, and/or characteristics that are valued in a course task domain. Appraisal respect and the relevant feedback must be specific and focus on the attainment of standards that are known rather than on the person.

We have placed a circled “A” in the box titled “External Feedback” in our revised feedback model (Figure 2) to represent this normative list of expanded feedback characteristics that a faculty member should consider when giving feedback. We also reflect both recognition and appraisal respect as integral to outcome and cognitive feedback given by the instructor and class peers. Additionally, we propose that, as with Butler & Winne (1995), these feedback characteristics are appropriate for outcome feedback for the task domain and for cognitive feedback for the self-regulated learning domain.

The Functions of Feedback

Butler & Winne (1995) also described five functions that feedback can serve: to confirm, to tune, to add, to overwrite/replace, and to restructure. A student may have a complete and accurate understanding of a particular knowledge segment or task within the domain. In that case, the instructor’s confirming feedback can let the student know that he/she has learned the knowledge or task well. When a student understands or performs in a basically correct or appropriate manner, but somewhat short of complete understanding, the feedback from the

instructor can help the student fine tune his or her understanding or performance. If the student demonstrates larger shortfalls in understanding, the instructor's feedback can add to the student's knowledge and understanding. When a student has knowledge that is incorrect or inappropriate, or when the task performance demonstrates an incorrect approach to the task, the feedback can show what is correct to allow the student to replace the knowledge or the routine for the task performance. And finally, when the student holds models or theories that are not appropriate for the application called for or are incompatible with the situation, the feedback can ask the student to make another choice for application.

We have provided this list in Table B and placed a circled "B" in the box titled "External Feedback" in our revised feedback model (Figure 2) to represent this list of functions that feedback can serve when a faculty member considers giving feedback. We again propose that, like Butler & Winne (1995), these feedback functions are appropriate for outcome feedback for the task domain and for cognitive feedback for the self-regulated learning domain.

TABLE B
The Functions of Feedback

-
- To **Confirm** a student's understandings/beliefs and congruence with course objectives
 - To **Tune** a student's understandings and use as basically correct
 - To **Add** information if the student has only partial information
 - To **Replace** prior knowledge that is incorrect or inappropriate
 - To **Restructure** incompatible theories and models

Source: Butler & Winne, 1995.

Student Reactions to Anomalous Feedback

Our revised model shows that students monitor, or in some cases actively seek, feedback from (1) the task on which they are working, (2) their own goals, strategies, results, and performance, and (3) relevant others in the task/knowledge environment. As most faculty have experienced, students do not always react to instructor feedback as the instructor hoped and/or intended. As with all individuals, students have their own experienced-based perceptual screens and interpretive schemas or frames (Goffman, 1974).

Chinn & Brewer (1993) examined the potential ways that students might respond to feedback that they obtain either through monitoring or through active inquiry in the sciences. Here, the student's desire to achieve the task or learning goals may come into conflict with the student's self-image. Butler and Winne (1995) draw on this work to provide a list of ways that students may react to feedback that is contradictory to some important aspect of the self or the belief/knowledge held. Table C displays that list. The circled "C" on the feedback lines in Figure 2 represents the intervening perception and interpretation of the feedback by the students and the possible responses that students can make to that conflicting feedback. Note that the list applies to both outcome feedback in the task domain and cognitive feedback in the self-regulated learning domain.

TABLE C
Student Reactions to Anomalous Feedback

- To **Replace** the incorrect knowledge with the correct information
- To **Ignore** the feedback
- To **Reject** the feedback
- To **Judge the Feedback Irrelevant**
- To **Hold the Feedback Separate** from the belief which remains unchanged
- To **Reinterpret the Feedback** so that it conforms to the pre-existing belief
- To **Make Superficial Changes** to the belief

Source: Chinn & Brewer, 1993.

Types of Strategy/Tactic Knowledge

As our Figure 2 portrays, students draw on their domain knowledge, their task knowledge, their portfolio of strategies and tactics, and their motivational beliefs when engaged in a task. This occurs in both the course content domain and the self-regulated learning domain. Butler & Winne (1995) expand on the understanding of the strategy/tactics domain by breaking it down into three categories of knowledge: declarative, procedural, and conditional. Declarative knowledge describes the characteristics of a strategy or a tactic. Procedural knowledge describes how to use or apply the strategy. Conditional knowledge sets out the conditions in which to use the strategy and how much effort an individual must put forth to successfully use the strategy. Table D below summarizes the three characteristics. The circled “D” in the Strategy/Tactics Knowledge box in Figure 2 represents the three types and applies to both the task domain and the self-regulation domain.

TABLE D
Types of Strategy/Tactic Knowledge

Declarative: What is the strategy or tactic

Procedural: How to use the strategy or tactic

Conditional: When and where to use the strategy or tactic; how much effort is required

Source: Butler & Winne, 1995.

ACTIVITIES OFFERING THE OPPORTUNITY FOR FEEDBACK IN THE COURSE CONTENT DOMAIN

As one might expect, there are numerous learning activities in the course content, or task, domain that offer opportunities for feedback, written, oral or otherwise, to students. The sources of that feedback can be the task, student, instructor, and/or the course peers. The possibility also exists that others not enrolled in the course can be sources of feedback. Table E lists those

activities and appears as the boxed F in the course content/task domain box in Figure 2. See also the active learning literature (Bonwell & Eison, 1991; Meyers & Jones, 1993).

TABLE E
Course Content Domain Learning Activities Offering Feedback Opportunities

Oral Presentations
Case Analyses
Discussions
Written Tests
Homework Assignments
Article and Book Reports
Research Papers
Field and Project Papers
Demonstration Projects
Laboratories
Role Plays
Simulations
Teamwork
Video and Audio Tapes

Four conditions that cultivate effective feedback are (Juwah et al, 2004): there is clarity on the requirements for the task; there are examples of effective task completion; there is the opportunity to do the task or activity, receive feedback, and then use the feedback to revise the activity before grading; there is modeling of effective feedback by competent individuals, particularly the instructor.

Making each of the course requirements clear is important as well as the levels of performance that correspond to whatever grading scheme exists for the course. The use of a feedback and evaluation rubric for each task (Arter & McTighe, 2001; Stevens, 2005) is an important approach that signals to the student what the instructor is looking for from each task and what grade reward will emerge from differing levels of performance. Presenting the rubric in the syllabus and discussing the rubric with the students are critical ways that students can clarify the instructor's expectations for a specific task. Providing a range of examples of what constitutes a good task completion as well as various levels of performance can also help students understand the rubric and make choices about what level of performance they will seek.

Significant benefits to learning can occur when students are given the opportunity to practice a task before a graded performance or to receive developmental feedback on multiple drafts of a paper. Davies, Schulte, & Johnson (1995) suggest using multiple drafts to improve all aspects of a written paper, including the clarity, logic, organization, and the grammatical correctness of the paper. Rappaport & Cawelti (1993) propose the use of peer feedback to improve written papers. And Rubin (2006) draws on the journal peer review process as a framework for students providing feedback on improving peer written papers.

Involving students in improving their own feedback skills is also a way to improve receptiveness to peer and instructor feedback as well as the quality of feedback, written and oral, given by students to others during class. Seltzer (1984), Michaelsen & Watson (1985), Bartholome (1986), and Nilson (2003) offer several different approaches and exercises for improving student feedback skills. And Larsen (1998) discusses instructor modeling of feedback to help students improve in giving constructive feedback.

ACTIVITIES OFFERING THE OPPORTUNITY FOR FEEDBACK IN THE SELF-REGULATED LEARNING DOMAIN

Specific, concrete classroom activities that enhance the self-regulated learning capabilities of the students are more challenging for the instructor and the student. Butler & Winne (1995) assert that the most effective learners are self-regulated learners, that is, learners who are more aware of the strategies and tactics they use for the task and for how they learn. That entails a conscious effort on the part of the instructor to bring to the surface for awareness, reflection, and discussion the ways in which he/she, as the instructor, and his/her students learn.

As with the course content task domain, the self-regulated learning domain involves domain knowledge, task knowledge, strategy and tactics, and motivational beliefs. We propose that faculty who effectively develop self-regulated learning in their students are faculty who (1) actively and continually develop their own knowledge and understanding of learning/teaching processes and models, and (2) continue to reflect on and critique their own preferred learning/teaching approaches and those of their students. These are faculty who use the feedback process to monitor and question student learning and to actively seek feedback from the students, and others, on the processes they use to facilitate student learning. They are faculty who use reflection-on-practice and reflection-in-practice (Schon, 1983). Table F below offers some tentative ideas for improving self-regulated learning for both the students and the instructor. A boxed F appears in Figure 2 in the self-regulated learning domain box.

TABLE F
Self-Regulated Learning Domain Learning Activities Offering Feedback Opportunities

Providing Information on, Administering, and Discussing Learning Style Models/Instruments
Providing Information on and Discussing Learning Models and Theories
Providing Information on and Discussing Learning Stage Development Models
Developing Critical Thinking Skills
Developing Reflective Practices
Surfacing and Critiquing Assumptions
Developing Question-Asking Skills
Developing Project/Paper/Presentation Organizational Skills
Developing Note-Taking Skills

Familiarity with his/her own learning style preferences (Claxton & Murrell, 1987; Coffield, Moseley, Hall, & Ecclestone, 2004) as well as the range of learning style preferences of the students in a course can inform an instructor's choices of learning processes for a course as well as the format of the feedback. There are a number of learning style instruments available on-line as well as for-purchase (Hawk & Shah, 2007) to help faculty assess learning style preferences and to provide a basis for class discussion. Knowledge about different learning models (Jarvis et al, 1998; Stage, Muller, Kinzie, & Simmons, 1998) can also inform not only the instructor but also the students about choices and approaches to learning.

Surfacing and critically discussing assumptions and values is another important way to expand self-regulated learning. These assumptions can underlie models and theories that are part of the course content or they can be assumptions and values that underlie learning models and theories and ways of learning. Faculty can encourage students to surface assumptions and values by modeling and developing question asking skills (Hunkins, 1989; Bateman, 1990) with the students.

We would also like to suggest that there is an alternative to the straight literal note-taking process that is so prevalent in schools today. That is the artful and color-centered approach developed by Buzan (1989, 1996) and Wycoff (1991) that works very well with visual learners. Aural learners may find taping sessions more to their liking. And finally, we have found the technique of visually storyboarding on the board or on newsprint the overall organizations of papers, projects, and presentations to be quite helpful in developing student skills at assembling longer written papers and case analyses as well as oral presentations.

CONCLUSION

We have built on the extensive and thorough work of Butler & Winne (1995) in an attempt to extend and revise their model of both course content task learning and self-regulated learning. We have offered a number of concrete and practical suggestions for applying the cognitive model they describe in their review.

Since 1995, there has been an increasing emergence of research on learning from the physiological (Zull, 2002; Kolb & Kolb, 2005), emotional (LeDoux, 1996), intuitive (Hogarth, 2001; Myers, 2002; Burke & Sadler-Smith, 2006), and imaginative (Greene, 1995) perspectives. Those research efforts point out the potential artificiality of segmenting and privileging the cognitive side of learning. Rather, they strongly suggest the integrated and whole person character of learning.

Zull (2002) and Kolb & Kolb (2005) offer research that reinforces the experiential learning model and what is happening physiologically in the brain during the learning process. LeDoux (1996) examines the integral role of the emotional centers of the brain during and on learning. Both Ashford & Cummings (1983) and Butler & Winne (1995) acknowledge the impact of the emotional attachment to self-image and beliefs on the effectiveness of feedback. Hogarth (2001) and Myers (2002) provide models of how intuition, what we cannot articulate and cannot recognize consciously, play a pivotal role in all learning processes. Burke & Sadler-

Smith (2006) explore how intuition is an integral part of our classroom activities. And Greene (1995) addresses the creative and integrative sides of learning by cultivating the imagination through the use of the arts. All of these suggest further exploration of the significant roles of physiology, emotion, intuition, and imagination on feedback in the learning process.

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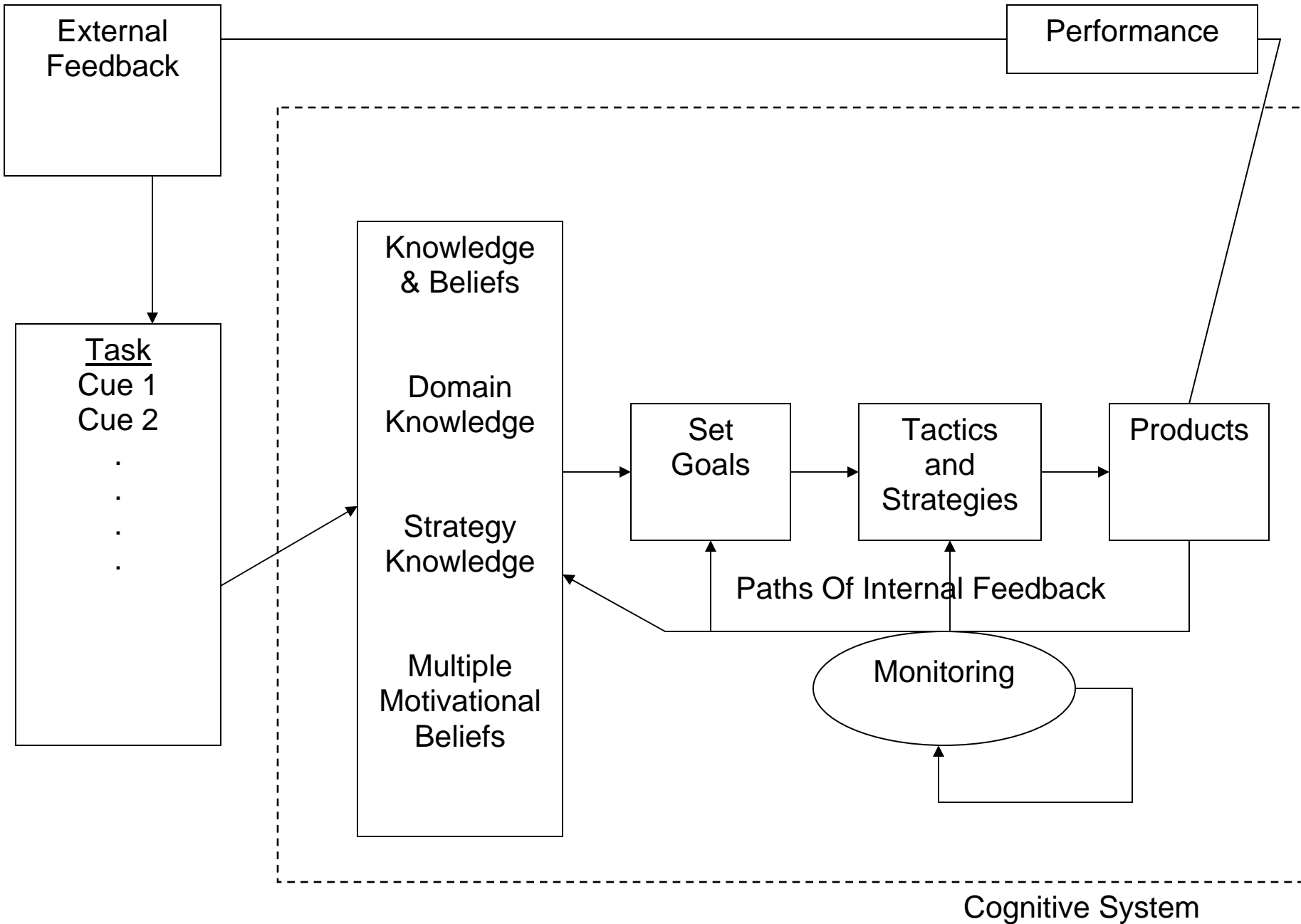


Figure 1. Self-Regulated Learning-Preliminary (Kuhl and Goschke, 1994)

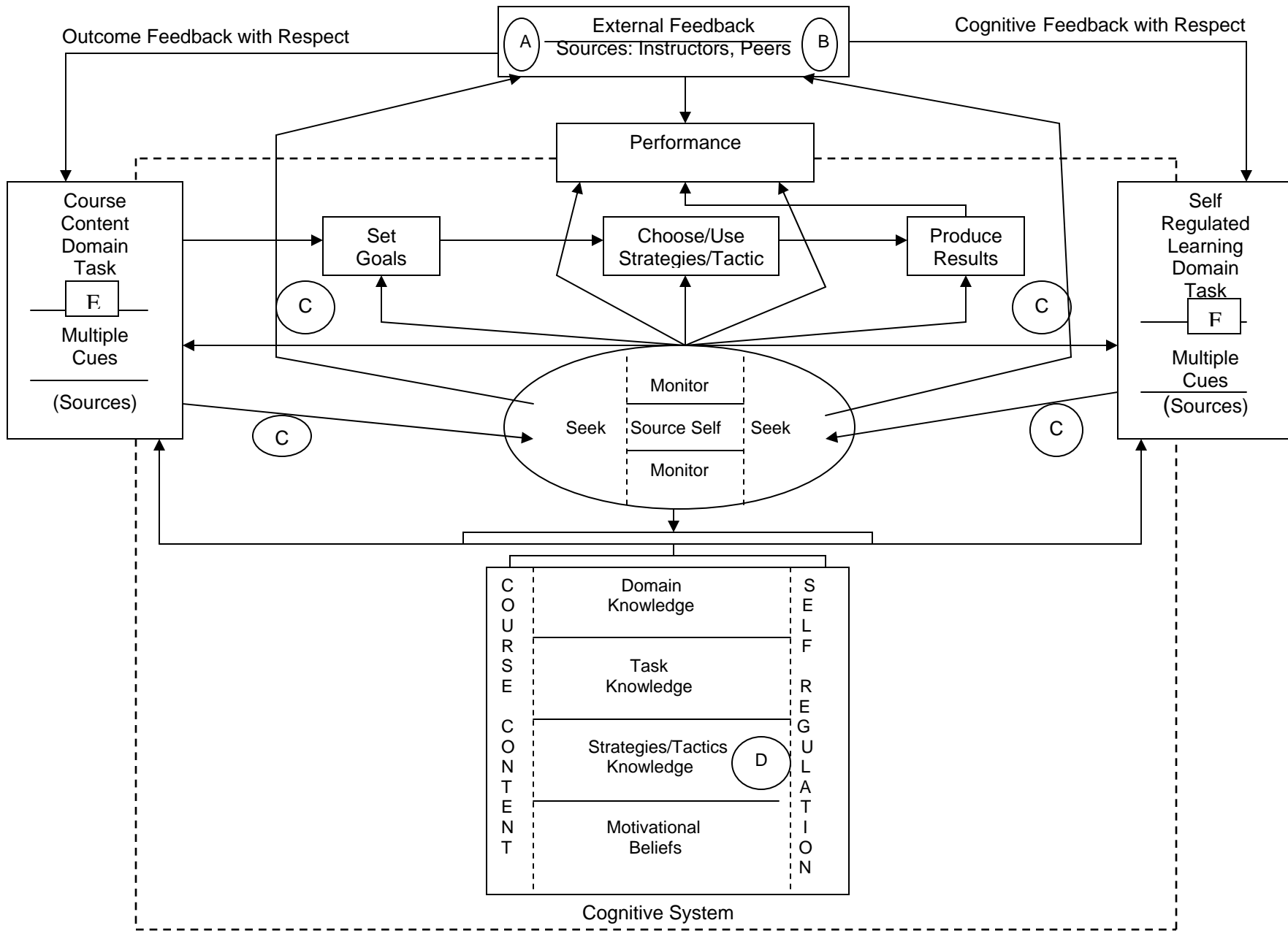


Figure 2. Revised Model Of Task and SRL Feedback