

IMPLICIT LEARNING IN THE REMEDIAL ENGLISH CLASSROOM:
STEPS TOWARD A PEDEGOGY OF LITERACY

by

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ABSTRACT

IMPLICIT LEARNING IN THE REMEDIAL ENGLISH CLASSROOM: STEPS TOWARDS A PEDAGOGY OF LITERACY

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This paper discusses the dynamics of implicit learning in the Remedial English classroom. In order to elucidate the topic, the area of explicit learning is also covered. By tracing the history of implicit learning theoretically and scientifically, its benefits and usefulness are thoroughly uncovered and investigated. Practical implications for the classroom are explained in detail and areas of further needed research are explored.

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CHAPTER 1

IMPLICIT LEARNING – INTRODUCTION CONCEPTS

It is commonly accepted that anxiety may negatively affect academic performance. The crux of this paper is the argument that implicit learning processes reduce learner anxiety. Remedial English students stand to benefit significantly from any alleviation of reading and writing anxiety; beyond that, implicit learning processes provide a myriad of benefits for Remedial English students. They foster personal identification with the subject; enhance memory capability and applicability; remain robust in the presence of learning differences and provide a more positive, overall learner experience. Further, implicit learning integration in the classroom creates a foundation for more successful future, implicit and explicit learning endeavors and supports sustained success and self-motivation for students through the increase of academic confidence.

The first chapter discusses the current research on implicit learning - much of which is still in its infancy. There are many crucial debates, mainly in the areas of awareness, abstraction and the overall functionality of implicit learning systems. The second chapter covers some of the benefits of utilizing implicit learning systems in the Remedial English classroom. The final chapter includes practical implications for the classroom, including examples of implicit learning strategies and exercises.

CHAPTER 2

WHAT IS IMPLICIT LEARNING?

2.1 Preliminary Definitions

The defining aspects of implicit learning are varied and constantly shifting. It is critical that a cohesive, comprehensive and resilient definition be developed in order to further investigate implicit learning processes. Berry and Dienes provide the most current and prevailing characteristics, citing that implicit learning is a process by which learning is achieved through stimuli/action links that are established without awareness; the person learning is unaware that he is unselectively observing and assimilating variables -- so that his knowledge is not expressible; and further, the process is said to be automatic, fast and non-disruptive to other tasks (11). In Berry and Dienes' definition, limited awareness and automaticity are the chief components of implicit learning. For our purposes, I'd like to also include a few more definitions and descriptive attributes of implicit learning processes for consideration. Kirsner et al. note the low impact of stress, stating that since implicit learning is abstract in nature and requires minimal intent to consciously reflect on environmental stimuli, it is not disrupted by stress or "competing processing demands" (120, 344). Frensch and Runger broaden the entire scope of implicit learning and hint that multiple environmental factors in the total and implicit learning process "emphasize the role of associative learning

mechanisms that exploit statistical dependencies in the environment” (13). Frensch and Runger’s definition allows for more inclusivity, but still does not effectively represent all the components of implicit learning. Underwood provides a definition that is a bit more comprehensive, while still allowing for some flexibility in interpretation, reiterating that the implicit learning process is largely automatic, requires minimal attentional resources and is developed with extensive practice (26). He goes on to say that implicitly learned material is “in some raw fashion, always ahead of the capability of its processor to explicate it” (201). This is in congruence with Berry and Dienes who also note the intuitive nature of implicit learning as one of its chief strengths in the face of psychological disorder (13).

As varied as the definitions of implicit learning are, the definitions for its counterpart, explicit learning, are equally diverse. Berry and Dienes explain explicit learning as the conscious, communicable evaluation of hypothesis and application of explicit rules – with the metaknowledge of said rules (2, 26, 56). Kirsner and Underwood expand a little on these components to include explicit learning’s critical effortfulness and disruption under stress, stating that explicit learning demands selective attention and can be greatly negatively affected by stress (29).

Given that students in a classroom setting are indeed aware (conscious) that they are there to learn; must exert some kind of effort in any writing or reading task (be it implicitly or explicitly driven); and may eventually be able to

command explicit verbal report of their knowledge based on preliminary implicit exposure, perhaps the following definition for implicit learning (in relation to the academic classroom) may be useful:

The predominant features of academic implicit learning are that it requires very little (immediate) intent to learn based upon system rules and regulations; demands little to no conscious attention to system rules and regulations; can be achieved with modest effort; is not significantly disrupted by stress; and is (initially) procedural vs. declarative. It allows for comfortable interaction and emersion with a subject without proceeding, direct metaknowledge of system organization, rules, procedures, etc.; it results in knowledge acquisition that may not initially be verbally describable by the student, but nonetheless may positively impact future performance on both implicit and explicit learning tasks, ultimately allowing the student to retain and reiterate specific skill sets.

In this definition, predominate features of implicit learning are listed, but the availability of their adaptability to the environment is also accounted for. Further, since explicitly learned material is not always recalled and reportable at all times; the learner's assessment of his own knowledge may or may not be accurate; and the explicit process is no more (consciously) voluntary or controlled than implicit processes (it is simply voluntary and controlled based on a different set of expectations and guiding principles), I offer the following definition for academic explicit learning:

Academic explicit learning is significantly effortful in that it requires attention to rules and regulations of a system with conscious intent to learn said system; it is likely to be negatively affected by stress and competing task requirements. Knowledge is typically recalled and reportable immediately after acquisition (excluding remarkably stressful circumstances) but is sustained (typically) only with continued explicit instruction or utilization that the individual can immediately use.

In summary, the definitions for implicit learning are varied, but the essential characteristics of implicit learning--regarding attention, effort, robustness and verbal report--are commonly agreed upon by subject matter experts. As knowledge in the field is ever-changing, definitions have become more broad and inclusive to accommodate for changes in the various secondary aspects of implicit learning.

2.2 Studies, Core Experiments and Debates

The most widely known implicit learning experiment is the Artificial Grammar Learning (AGL) task created and delivered by Arthur Reber in the 1960s. This test mainly pointed to the idea that implicit learning enhances performance, but not the concurrent ability to verbalize performance metaknowledge. Participants were asked to memorize a set of letter-strings that were primed with masked rules. After the memorization stage, participants were told that the strings followed a rule system; participants were then asked to classify strings into categories of grammatical (following the rules) or ungrammatical (not following the rules). Typically, participants were able to perform this task without knowledge of rule dynamics and with little or no ability to verbalize their knowledge. The AGL experiment was the first of many to show that implicit learning participants are consistently able to acquire knowledge that they cannot immediately verbalize. That is, "Implicit learning is said to occur when there is an increase in task performance accompanying increase in verbal

knowledge about how to carry out the task” (Underwood, 8).

It is important to note that attempts to verbalize knowledge in the ACG task appear to be completely failed. It is not that the participant is trying to describe a system for which his vocabulary cannot support, but almost as if that system exists (is known by him) without his conscious, working knowledge of it. This is a key debate among current theorists since the measurement of consciousness is difficult and few experiments are process pure in this area. Underwood tackles this issue by urging scientists to attempt as much objectivity as possible, noting that since a person cannot know (philosophically) if another person is conscious, the least the experimenter can do is “demonstrate that what someone is remembering or has learned is not influenced by their awareness of what they are remembering or of the rules underlying the learned relationships” (vi).

By attempting to remain as objective as possible, scientists can (at least on some level) effectively tackle issues of consciousness in their experiments. Other scholars have tried to rectify this issue as well, noting the durability of measures such as the Semantic Access without Conscious Identification (SAWCI) which is demonstrated when “a measure of conscious perception indicates null sensitivity to a stimuli but a second measure of semantic processing indicates that the stimuli was nevertheless perceived” (Berry,4). Of course, there will always be debate as to what counts as “a measure of conscious perception.”

Another consciousness debate regarding AGL experiments is that participants are often able to at least point out which letters in a string make it grammatical, indicating that there is some level of conscious recognition of system rules. The Kunst-Wilson study, which analyzed the connection between subliminal priming and implicit learning found that subjects who were subliminally exposed to shapes were unable to perform well on subsequent force-choice tests but nonetheless showed consistent preference for previously seen shapes on preference rating tasks. Since theorists have been unable to agree on the role of consciousness in implicit learning, Frensch and Runger offer a definition, largely in the vein of connectionist and possible-access theories, which states that implicit learning is associative in that it picks up patterns in the environment, but that the patterns themselves are (initially) indiscernible even though the learner responds to them favorably (17). Frensch and Runger are basically describing an unconscious process, but doing so while allowing for the possibility that conscious mechanisms may still be at play.

In the wake of Reber's AGL study, psychologists exasperated by consciousness debates sought to explore the practical role of implicit learning in long-term, performance-driven tasks. In the 1980s, Donald Broadbent created an experiment in which participants interacted with a computer program of an imaginary city transport system. Participants were instructed to control variables to ensure system success and reach target goals of efficiency. Most participants were able to achieve target goals with practice, but were unable to verbalize the

system with which they obtained success. Encouraged by the apparent usefulness of implicit learning in Broadbent's study, Charles Nelson conducted a study that revealed decision-making accuracy and speed were positively impacted by repeated implicit learning exposure. In Nelson's study, participants were presented with material that was later represented; across the board, subjects were quicker to recognize and respond to material, but were nonetheless unable to verbalize the justification of their actions.

Important to both consciousness and performance investigators is the issue of effortlessness and automaticity in implicit learning; both have been studied by Reber and Broadbent and many others. By comparing performance on implicit learning tasks in which participants are told to focus on (or attempt to find) a particular system strategy vs. tasks which entail little to no initial instruction of this sort, experimenters have found that groups instructed to follow specific strategies often perform more poorly on tests designed to measure levels of implicitly acquired knowledge. This hardly proves that implicit learning is completely effortless, but it does point to minimized effort on focused, system-based strategy. Automaticity in implicit learning is central to the concept of effortlessness. This is because it is assumed that automatic processes entail significantly less mental and/or physical effort.

Many theorists are beginning to hold a neutral position that implicit processes are a combination of controlled and automatic processes. Underwood expands on this theory, surmising that automatic and controlled processes are

utilized concurrently and are executed in either a continuum, hierarchy or open-looped/practice-based feedback system (26-29). Related to automaticity is intentionality--an area that has been studied very little among implicit learning theorists. It seems that explicit and implicit tasks both demand some level of intention, though the role and type of intention may differ.

More recent theories regarding implicit learning seek to understand the mechanisms by which it operates and its involvement in our everyday lives. Frequency detection and exemplar modeling are two such theories. Rose Lynn-Hasher believed that “the occurrences of letters, symbols, surnames, professions, and sources of morbidity and mortality are events to which people show frequency sensitivity” (Underwood, 30). She conducted a survey that tracked handed art from prehistoric times to the 1970s. Her observations showed that although throughout history left-handedness was considered evil, defective or of ill-luck, artists’ renditions consistently, accurately coincided with actual left and right-handed distributions in the population, indicating that artists implicitly picked up on this variable and represented it in their renditions--despite the explicit direction not to. Exemplar modeling, similar to frequency detection, (and also somewhat related to Paired Associate Learning or PAL and familiarity theory) holds that implicit learning is a process of associative comparison to environmental exemplars and that most of our everyday learning takes this form. Geoffrey Underwood gives this example of PAL, “A novel four legged beast is perceived as a dog, not because it fits with the viewer’s abstract feature system

for dog but because it reminds him of a specific critter he has met before which was identified as a dog” (Underwood, 22). Related to frequency and exemplar models are concept and sequence learning. Many studies have been conducted that show much implicit learning is a result of sequence detection and concept application. Computational and chunking models, of the same theoretical circle, hold that information is processed as content chunks that with utilization, gain strength and applicability in future, related tasks. Chunking is a curious model since it is also present in explicit learning endeavors.

Popular belief then, is that unless an individual is negotiating unfamiliar circumstances, he typically learns in a mostly implicit fashion. John Vokey and Lee Brooks dispute this claim in a recent article, arguing that most learning is in fact explicit, but that explicit learning can be either analytic or non-analytic: “Analytic processes are the typical processes of the scientific method, in that they involve rule induction and logic...Non-analytic processes deal with special instances and circumstances personal to the individual” (Underwood, 21). Vokey and Brooks go on to say that most learning is analytical. Aside from the apparent correlation with explicit and implicit, Vokey and Brooks’ definitions are problematic because it is difficult to claim that any significant portion of the population normally guides their decisions with anything like the scientific method.

Some studies show that the disconnect between implicit and explicit learning, however, is not as wide as once thought. Dianne Berry suggests that

“people appear to develop some explicit knowledge as a result of (implicit) task experience. The evidence seems to indicate, however, that in many cases, increases in explicit knowledge occur after improvements in task performance” (26). In any case, it is possible that implicit and explicit processes are more closely intertwined than once thought.

In summary, the Artificial Grammar Learning (AGL) task is the most well-known implicit learning experiment; it pointed to the basic nature of implicit learning as a process by which a person attains knowledge but cannot immediately verbalize it. Since the AGL experiment, many studies have been conducted in attempt to resolve debates over the secondary characteristics of implicit learning regarding consciousness, applicability in “real-life” scenarios, automaticity, and method of operation. To date, the investigation into these subjects is still ongoing, but most theorists agree that implicit learning interacts with explicit learning in our daily lives and that it is a largely unconscious and automatic process resulting from some level of environmental observation / interaction.

2.3 Implicit Memory and Motivation

Current theory suggests that implicit memory and motivation are components of implicit learning but that they should be studied separately, as autonomous cognitive agents. Underwood describes implicit memory as “distinct from implicit learning in that it is characterized as the influence of a previously

memorized piece of information on a task without the explicit or deliberate attempt to recall the memory” (10). Several other theorists have attempted to identify defining characteristics of implicit memory. Berry points out that implicit memory seems to be “very much tied to the surface characteristics of stimuli” (8). Robert Matthews conducted experiments which led to the conclusion that implicit memory is a singular and independent process, formed by sub-components of past experiences as well as current mental models.

Implicit memory can occur with explicit or implicit learning, but is more pronounced with initial, concurrent implicit learning. Like implicit learning, it also appears to be more robust than its explicit counterpart. Berry points out the durability of implicit memory, citing that, “A number of studies have manipulated retention interval and have found that implicit memory is less affected than explicit in some situations” (8). Further, many studies show that implicitly remembered material can be explicitly reiterated more easily and more efficiently than explicitly acquired/recalled knowledge. Larry Jacoby observed this phenomenon in a study task that required elaborative processing or non-elaborative processing; he found that implicit memory performance was unaffected by elaboration manipulations. There is some evidence that implicit memory can also positively affect future explicit learning endeavors because “after behavioral mastery is achieved, the implicit representations can be (more easily) redescribed into explicit forms” (Kirsner et al., 158). Finally, Broadbent noted there may be fewer limits on storage space, accessibility and retention

interference for more unconscious, implicit memorization and retrieval strategies.

Implicit motivation has not been studied as extensively (in terms of its relation to implicit learning) as implicit memory, but what is clear is that implicit motivation is closely linked with implicit learning in that it is largely unconscious (requires minimal, initial conscious effort/intent/involvement). It also provides an associated affect with the learning experience that can dramatically affect performance in both implicit and explicit learning tasks. Schultheiss notes that “Implicit motives reflect a desire for pleasure derived from affective learning experiences... and as such, they may be linked to cognitive processes that automatically influence behavior without conscious effort” (213). Schultheiss’s definition provides the key component to implicit motivation and learning -- they are both associated with intrinsic incentives. This is in stark contrast to explicit motivation that “relies heavily on information stored in the self-knowledge system, which reflects explicitly learned, well-articulated goals and values and is linked to conscious goal setting” (Schultheiss, 213). Implicit motivation can, however, positively impact explicit motivation and goals. If a student associates positive affect with a learning situation, this implicit motivation system may incline him to develop additional, explicit (and implicit) motivations and goals for achievement. Schultheiss comments on this process saying that “reinforcement of motive relevant behavior increases the probability of further motive relevant behavior” (214). So a positive implicit motivation can lead to a positive explicit motivation. In fact, regardless of how the student is originally motivated, implicit learning is

likely to result in subsequent positive implicit (and explicit) motivations and goals. This is because implicitly performed tasks often include fewer negative experiences for the learner (such as explicit absorption demands/anxiety), and it is likely that they significantly, positively impact learner beliefs, attitudes and motivations. This is just one example of the interconnectedness of implicit and explicit processes. Some theorists believe that implicit motivation also carries the benefit of being more long-term whereas explicit motivations are more short-term. In the academic world, the long-term motivations and goals are what drive student success; while there is no doubt value in studying for one exam, a student is much likelier to succeed in all of his classes if his motivations are more long term. This is especially true for students who may choose to extend their academic careers beyond the bachelor level.

In summary, implicit memory and motivation may be components of the implicit learning system, but they are typically studied as independent cognitive agents. Like implicit learning, both processes involve minimal conscious intention and provide the benefits of robustness, durability and positive learner experience.

CHAPTER 3

WHY IS IMPLICIT LEARNING VALUABLE?

3.1 Learning Disabilities

Of its many benefits, its robustness in the face of learning disability makes implicit learning extremely valuable. Many Remedial English students have one or more learning differentiations, so close examination of implicit learning benefits is useful. Most well known, amnesia and other forms of memory difficulty have been shown to benefit from implicit learning. Frensch and Runger point out that “even densely amnesic patients show near-normal implicit learning in both the grammar-learning and sequence-learning paradigms” (16) and Reber found that implicit knowledge has a “robustness to decay over time” (Kirsner et al. 52). Berry notes that “amnesiacs can display unimpaired on implicit but not explicit memory tasks” (9). This benefit is useful not just for profound amnesiacs, but also for those with mild attention related (and other) memory disorders.

Berry has also studied implicit learning in dyslexia and agraphia, finding that subjects are able to utilize implicit learning to gain “implicit lexical knowledge of visually presented words” (116). Kirsner notes that whatever the learning disability, it stands to benefit from implicit learning since “implicit learning (inherently) occurs in circumstances when the relationships to be learned are too complex to be handled by the limited-capacity explicit learning system” (151).

ADD and other attention issues have also been recognized as challenging roadblocks for students. Kirsner discusses the usefulness of implicit learning in this instance, noting that since it requires minimal selective attentional resources, implicit learning could have major ramifications in developmental classrooms (349). In the area of selective attention, it is useful to note a recent experiment done on patients with Unilateral Neglect. This disorder has been linked by some medical professionals to ADD because it affects parts of the brain responsible for focused, selective attention. Unilateral Neglect is a neurological condition characterized by impaired ability to attend to stimuli to the opposite side of space to the damaged hemisphere. A patient with a right cerebral injury, for example, would ignore stimuli that falls to his left. In the experiment cited by Berry, subjects with left-sided neglect were shown two pictures of houses - one was on fire on the left side. The results documented on one subject were astonishing. Initially, the subject saw no difference between the pictures, but when asked which house she would prefer to live in, she indicated she would prefer to live in the non-burning house. Later, the subject was shown a picture of a house that was on fire on the right side and she subsequently realized the fire on the left-sided flaming house. The results of this study can be encouragingly applied to implicit learning; there may be a possibility that with appropriate cuing in implicit learning tasks, students with attention deficits may be able to perform better than they would with only explicit learning tasks. The results also support the theory that implicit learning somehow taps into a more (though perhaps not completely)

“unconscious” level of (in some sense) more automatic learning and/or recognition.

It has also recently been discovered that autism patients are able to retain the same level of implicit learning levels as their non-autistic peers. A study by Brown et al. indicates that learning disturbances for autism patients actually come from more explicit processes. In the study, ASC and TD (typically developing) participants were given explicit and implicit learning tasks and it was found that implicit mechanisms were preserved in ASC participants (1789). Scott Kaufman remarks on this study, noting that not only do implicit processes aid in the intellectual and social development of autistic individuals, but heavily explicit processes can actually interfere with their development and “for implicit acquisition to proceed normally, the learning must not be obstructed by explicit strategies “ (1).

Implicit learning is useful in a wide range of psychiatric disorders as well, including anxiety, depression, alcoholism, mood disorders and schizophrenia. Berry cites that in AGL tasks “psychiatric patients classified grammatical and non-grammatical similarly to normals after exposure to grammatical strings, but were inferior to normals on a task that required determining a mapping between letters and numbers” (58). Rathus et al. conducted a study that also found anxiety negatively affected explicit but not implicit learning activities (163). There is some evidence that implicit learning not only operates well despite anxiety but that it lessens it. Interestingly, it is possible that implicit learning is even fueled by

anxiety to some extent. Because the student is required to think on his own, without explicit instruction and the competing demands that go along with it, he is able to release some tension (be distracted from it), in a safe and non-threatening way -- using what becomes an anxiety-reducing activity -- writing. The anxiety, burnt up like fuel in a gas tank, becomes a conduit for success. Initial anxiety serves as the catalyst, enhancing the student's desire to engage in an implicit task that immediately relieves some of his agitation through positive exposure. By contrast, explicit learning does not provide the same type of instant, intimate involvement with a subject and thus learner catharsis is delayed.

The concept of anxiety in relation to implicit learning was tested by Travis Proloux in a study that operated under the assumption that every type of anxiety is at root produced from a search for meaning in our lives; this search is ignited in an effort to avoid potential lack of meaning, or as he calls it, "meaning threat". He found that when participants were exposed to meaning threats (for example, a Kafka short story) they showed enhanced performance on AGL tasks. These findings he says, "significantly broaden the expansive literature exploring responses to meaning threats, as well as the implicit-learning literature" (1125, 1130). Proloux's results indicate that while we should aim to reduce anxiety in the classroom, since it will undoubtedly seep in, perhaps implicit learning is a powerful tool in harnessing student discomfort and transforming it into learning potential, while simultaneously reducing overall apprehension. More information about the relation of anxiety and implicit learning is discussed in section 2.4.

Of all its benefits though, perhaps the most noteworthy strength of implicit learning is that it can operate effectively regardless of conservative I.Q. differentiations. Reber argued that “because the implicit rather than the explicit system developed first in evolutionary terms, it should show less between-subject variability and operate largely independent of I.Q.” (Berry, 59). In review of recent and traditional AGL studies, it does appear that compared with explicit tasks, there is a smaller variance with I.Q.

In summary, implicit learning is useful for individuals with learning impairments; problems with memory and/or attention; and/or psychiatric disorder. It is also effective regardless of mild I.Q. variances. For these reasons, implications in the educational system are profound.

3.2 Cognitive Performance

As covered in previous sections, implicit learning has a lot to offer in the way of improved cognitive performance and this no doubt translates into greater success for students. Two such benefits are speed and transferability. Underwood has studied implicit learning relative to its impact on the speed at which subjects can later recall implicitly learned information. His findings indicate that in contrast to explicit learning, repetitive implicit learning more drastically improves time savings during relearning (10). He also cites Reber, who found great transferability with implicit learning, noting that in the AGL experiments, “subjects’ learning on one set of letters from an artificial grammar can

discriminate novel strings made up of a new letter set from the same underlying grammar structure” (11). Both speed and transferability no doubt have important implications in traditionally scheduled academic classrooms.

Beyond the benefits of speed and transferability, there is some evidence that implicit learning may lead to fewer overall errors in grammar. Robert Connors and Andrea Lunsford found that over the years, “personal narrative has been replaced by an emphasis on argument and research” (793). Simultaneously, grammatical and format errors have increased. While this could be attributed to many factors, it is important to note that personal narrative is in large part a form of implicit learning in the writing classroom and its disappearance may have contributed to the increase in errors. Some studies show that this may be because implicit learning tasks provide for more personal, intuitive interaction with subject/stimuli and that people “know more about situations they have personally experienced” (Berry, 24) which allows them to more effectively harness the language during expression. Berry reiterates that in implicit learning, the “combination of high levels of practice with a larger solution space is particularly important in bringing out positive (personal) associations” (25) that impact performance. The higher solution space of narrative, implicit-style learning no doubt fosters fluency while explicit learning might hinder it in some ways.

As mentioned previously, some theorists argue that implicit learning is the simply best way to increase overall cognitive functioning and knowledge

acquisition – and is in fact the most common way we learn. Underwood describes the abstractionist position that holds, “based on a series of demonstrations in the artificial learning paradigm...(most) abstract, rule-governed knowledge is acquired in a passive, unconscious manner” (20). Even those who disagree with this proposition, like Vokey and Brooks, have admitted that something like implicit learning (non-analytic processing) is indisputably at play in our lives. Many theorists have noted the integral involvement of implicit learning in everyday language. Craig Speelman gives a simple but clear example, noting that it is not obvious how context helps us distinguish between the varying definitions for words like “bank”; rather, the meanings pop into our heads with little focused effort because of an implicit association (Kirsner, 188). Speelman argues that it makes sense to integrate implicit learning in the classroom if it is in fact the most common form of learning. This engages students with a learning system that feels natural and assessable to them.

The high automaticity of implicit learning also stands to greatly improve cognitive processing ability. In light of the various contentions previously presented, below is an edited summary of the benefits of automatic processing (my additions are in parenthesis):

The defining characteristics of automatic activities are that they develop with practice; are performed smoothly and efficiently; are (somewhat) resistant to modification; are (mostly) unaffected by other activities; do not interfere with other activities; are initiated with (minimal) intention; are not (entirely) under conscious control; and do not require (extensive/focused) mental effort” (Underwood, 26).

Given these attributes of automaticity, it is clear that implicit learning would be useful in an educational setting.

The importance of implicit learning as a sort of cognitive stepping stone to more difficult learning tasks is noted by Underwood. He lists skills hierarchically and notes that the automatization of low-level skills allows a person to direct his attention to higher level activities (27). With (implicitly learned) familiarity, students are better able to attack higher level, explicit learning tasks. Among other factors, this is achieved through significant reduction in anxiety and increased confidence through routine exposure. Dan Milech notes that “stress limits the capacity that can be devoted to a task...automatic processes are likely to be used when stress and complexity are high” (Kirsner et al. 304). So since Remedial English students bring a lot of stress to the classroom, implicit learning should be utilized, as it is what they will probably be most comfortable with in the launching phase of their academic careers. Peter Elbow demonstrates this point, reiterating that students are typically spending a lot of time worrying about the correctness of surface features and are thus too anxious to concentrate on their writing (39). Susan Gardner notes a similar position, pointing out that once linguistic rules are implicitly internalized, students can better focus on their writing, but that this process is more acquisition than formal learning (23). In many ways implicit learning provides a safe stepping stone for struggling students – allowing them to progress beyond the basic structures of the language to a higher level of and success.

Underwood points out that implicit learning also provides an 'open-loop' processing forum for the student. This is because implicit learning (unlike explicit learning) does not require the student to stop and explicitly match intention with action - disturbing the outflow of work. Feedback in the open-loop control mode is smoother because there are no interruptions to the flow of action and performance becomes faster because "time taken to check the feedback is eliminated and accuracy is improved because the performer is now able to issue instructions for action based upon overlearnt associations" (28). Implicit learning provides the student with a swift, uninterrupted experience with the stimuli that fosters familiarity and knowledge absorption. It also allows the student to go from "reliance upon algorithm-based action to reliance upon (his own) memories" (Underwood, 29). This increases confidence - which also decreases overall anxiety. Exercises such as limited, post-editing can be used in the classroom with open-loop work. This will be discussed in further detail in Chapter 3.

Efficient acquisition of complex material in open-loop systems means that implicit learning can impact and even lead to more developed explicit knowledge acquisition. Elbow notes an example of a student using spell check. This is implicit learning in that the student learns correct spellings by merely seeing them corrected for him – but the student is able to absorb some of this knowledge and apply it on future tasks; the spell-check system then, allows him to implicitly engage in his writing without stopping to check for explicit spelling errors. Initial implicit interaction with a subject is likely to influence students to do well not only

on their current activity, but on future related activities as well.

Finally, worthy of note in this section (and as mentioned previously), implicit learning seems to be more robust against memory disturbances, which is no doubt of cognitive benefit. Specifically, it appears to remain accessible for much longer periods of time than explicitly learned material. Berry notes that “people show evidence of implicitly acquired knowledge after long retention intervals, when there is no longer any evidence of explicitly acquired information” (15). This is certainly something that would come in handy during a semester-long Remedial English course in which high-risk students are required to digest and retain complex working knowledge systems for extended periods of time.

In summary, given the positive cognitive benefits of implicit learning, it is critical that it is incorporated into the Remedial English classroom. This will increase student cognitive ability in areas of confidence, speed, transferability, error reduction, and memory. It provides benefits of automaticity through an innate and familiar learning process and offers an educational stepping stone for struggling students. Certainly however, there is a case to be made for the detrimental need for explicit learning in the classroom as well. The next section covers some of the benefits of a blended approach.

3.3 Implicit/Explicit Blended Learning

Since Remedial English classrooms must provide the student with a great deal of explicit material, there is no doubt that explicit learning has a place in the

academic paradigm. However, there are many benefits to a blended implicit/explicit learning approach, especially for Remedial English students. Implicit learning influences students at somewhat subconscious levels that they may not be aware of at first, but that they can later identify – by recognizing areas (grammatical and/or analytical) in which they have progressed; they can then apply those knowledge systems more explicitly. Elbow gives an example regarding free writing, saying “what looks messy at first glance is often quite patterned. What (the student) wrote may have a large coherent pattern which is obscured by local clutter, digressions and interruptions” (143). He goes on to say that when students review their work they should respect the chaos and simultaneously look for the order behind their writing. This kind of self-illuminating process allows the student to see his own progression which increases confidence and reduces overall learning anxiety. Once the student has gained some explicit knowledge (through uninterrupted implicit tasks followed perhaps by explicit instruction), writing becomes a synergistic combination of implicitly and explicitly acquired knowledge/experience. Elbow notes that although free writing invites looser structure, there is nothing in it that prevents the utilization of an explicit foursquare approach – and this can be done without being overly stiff and without losing any personal expression or implicit engagement (316).

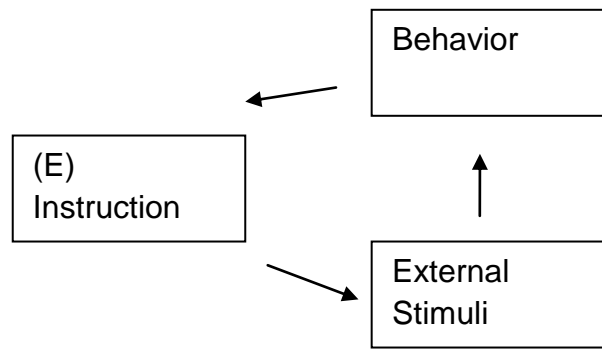
This is the aim for the Remedial English instructor, to prepare students to eventually conform to the structure of the English language while allowing them

freedom of expression and a combination of modes of learning that are effective and familiar, so as to encourage voluntary (even passionate) involvement. Free writing with limited, post-editing is one way to initiate this process – and is an example of the usefulness of a blended approach.

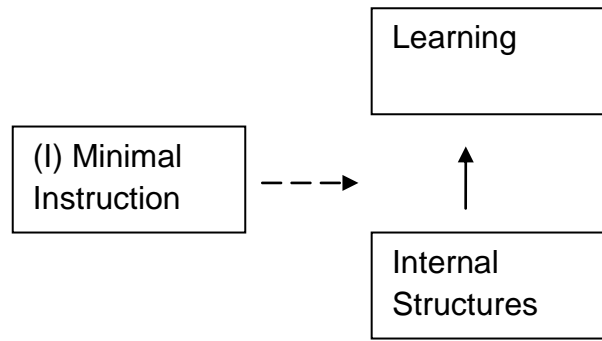
Berry notes that most mental models operate optimally when utilizing both implicitly and explicitly acquired knowledge and experience. She cites a study done by Marescaux et al. in which subjects were involved in a simulated computer game in which they had to increase production at a sugar plant based on various elements such as employee hiring and training. Marescaux found that when subjects were given minimal explicit instruction by way of a general, mini-history of the plant, they did increasingly well (24). In this case, the combination of appropriate explicit instructional backdrop with implicit involvement garnered the best result.

Structured reciprocal learning is a good example of explicitly primed/implicitly active blending. In this scenario, students are given limited direction from an instructor and allowed to briefly lead (as best they can – without interruption) small peer groups in a study session. Reciprocal learning provides the student with explicit instruction and implicit learning (through the teaching of others). Certainly, after each session, the instructor may provide some further guidance and feedback, but historically much of what the student instructs his peers on is grammatically and analytically sound - especially with fixed amounts of pre-session direction.

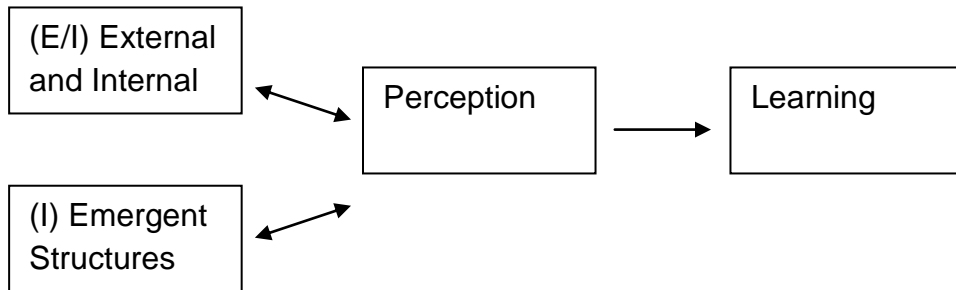
Herbert Walberg calls for a blended implicit/explicit approach in which a student is given a combination of explicit, behavioral guidance combined with implicit, internally-supported learning in order to enhance his overall perceptions and natural learning systems. This is called the “perceptual model”. In behavioral models, focus is given to behavioral manipulation through reward and punishment. In the structural model, the student is more or less left to his own devices -- the environment is created to stimulate him, but he is given little if any guidance. In the perceptual model, both guidance and autonomy are provided, but the driving force behind all learning is the student’s own internal implicit learning system. In perceptualism, much of what would be considered implicit learning takes place, but the student is continuously aware of his advancements and working to employ them on future implicit and explicit tasks. On the next page are Walberg’s models of behaviorism, structuralism and blended perceptual processes respectively. Of note in the perception model, explicit instruction is not the primary, initial or reinforcing educational factor.



(a)



(b)



(c)

Figure 1: Walberg's Learning Models: (a) behaviorism, (b) structuralism, and (c) perceptualism.

According to Walberg, structuralism and (subsequent) perceptualism links back to Plato, who saw “education as the soul's re-cognition, more precisely, stage wise apprehension and integration of abstract ideas, of which the empirical flux is but a series of images” (145). Conversely Aristotle, says Walberg, believed in a more behaviorist viewpoint, favoring “explanation in terms of empirically discriminable qualities, and classification rather than integration of subject matter for inquiry” (146). Structuralist and perceptualist psycholinguists today passionately disagree with Aristotle, asserting that “an (abstract) structural capacity for language is a priori; in view of the fact that though human environments vary enormously, there is a nearly universal (innate) mastery of complex language rules among children” (Walberg, 148). Structuralists and behaviorists ultimately though (like implicit and explicit learning theorists), constructively stimulate each other says Walberg – because a blended approach to education is the most comprehensive in scope and aids holistic education in that it “draws the learner out rather than just stamping knowledge in” (150). This follows from the realization that education must work with rather than against the mind, which “consists in part of homeostatic components which preserve identity and individuality against the vicissitudes of the environment” (151).

Much in the same vein as Walberg's blended approach focusing on an internal, natural drive to learn and pick up patterns on one's own, Theresa Schilhab notes that implicit learning is more "authentic" and “the notion of authenticity frames to what extent critical properties such as transferability to

different contexts and conveyance between agents, which seem vital to class teaching, are met by implicit and explicit knowledge” (223). She says that “by nature, implicit representations are closer to (in the sense of reproducing or mirroring accurately) their referents than explicit representations, since implicit knowledge more or less results from an innate sensitivity to structural features of an experienced situation” (224). Schilhab points out that implicit learning allows for more personally -driven interpretation and therefore more meaning for the student -- and it is meaningfulness that is central to educational pursuits; meaning reinforces importance and the autonomic nature of implicit learning (and of individuals). Here she cites Frege’s concepts of intension and extension - congruent with implicit and explicit learning respectively:

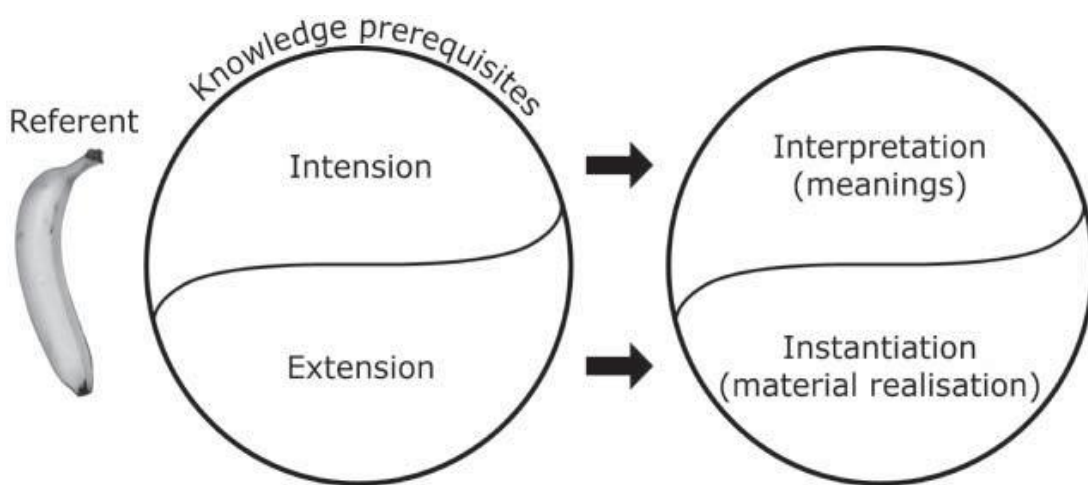


Figure 2: Frege’s Concepts of Intension and Extension

The authenticity and practical meaningfulness of implicit learning, says Schilhab, makes it of tremendous use in the classroom since “ Implicit knowledge works well when the situations in which something is learned are like the situations in which the knowledge should be applied. Therefore it works well whenever certain skills are the desired” (236). In short, implicit practice makes perfect, especially if it is practical.

The blended approach, then is of great cognitive benefit and overall impact since implicit learning provides the otherwise heavily explicit-learning driven classroom a blend of natural and performance enhancing learning of invaluable importance. Based on concepts of automaticity and minimal consciousness-effort, it is ironically implicit learning that allows the learner the highest level of positive personal association and practicality since it allows for immediate individualized interaction with the subject. This is central to a blended approach, and specifically to Walberg and Schilhab’s models – that effective education consists of minimal explicit instruction and intense implicit learning engagement – engagement that should be of a profound positive, personal and empowering nature in order to be considerably productive.

In summary, because of its usefulness in creating a comprehensive learning system with long-term benefits, a blended approach is the best choice for the Remedial English classroom. Because students are able to familiarize themselves with the subject and recognize their own abilities, they are better equipped to utilize and develop future explicit learning processes. Implicit

learning provides the student with personal identification and sense of meaning in a learning process they may have previously found inhospitable. Our study, reviewed in the next section, further shows the value of using a heavily implicit, blended learning approach.

3.4 Implicit Learning Anxiety and Performance (ILAP) Test

Introduction

Our study addressed the assumption that we would see greater analytic performance and reduced anxiety in students heavily engaged in implicit learning/implicit blended tasks. Our primary inquiries centered around the following questions: Do students have more anxiety during primarily implicit or primarily explicit learning activities? Do students perform better grammatically after primarily explicit or primarily implicit learning activities? Do students perform better analytically after primarily explicit or primarily implicit learning activities? And finally, do students better remember mistakes and apply corrections during later testing after primarily explicit or primarily implicit learning activities?

Method

The study was conducted in-classroom via written activities. The subjects were Remedial English students from (4) different classes/groups of the same level - (2) were tested with the mostly explicit activity and (2) with the mostly implicit activity. Testing time was ~ 35 minutes. Implicit groups were given a short question/answer series (>10) about student likes/dislikes (film, music, etc.). Each

question required only a short (one to two sentences), informal response. All questions were formatted with special attention to a common grammatical rule, but this was not pointed out to students. This activity was immediately followed by a (half-page) reading-summary response paragraph in which students responded based only on the content of what they had read. No focus was given to grammatical correctness. Students were then asked to review their summary responses and edit analytical and/or grammatical areas where they may have made mistakes. Finally, a variation on the Daly-Miller Writing Apprehension Scale (WAS) was given.

The explicit groups were given a grammatical question series (>10) in which they identified errors in sentences. This was followed by a reading-summary response exercise. In this response, students were told to focus on content of the response as well as grammar. Students were then asked to review their summary responses and edit analytical and/or grammatical areas where they may have made mistakes. A variation on the Daly-Miller Writing Apprehension Scale (WAS) was then given.

Results

The results showed that the pre-edited summary responses from the implicit group were not significantly different grammatically from the explicit group. However, they were analytically superior (again, the difference was small). Editing done in the implicit groups however was far superior to explicit groups, indicating better retention of previously generated knowledge from proceeding

(implicit) exercise. Finally, implicit group students scored significantly lower on overall anxiety levels. These findings are presented below.

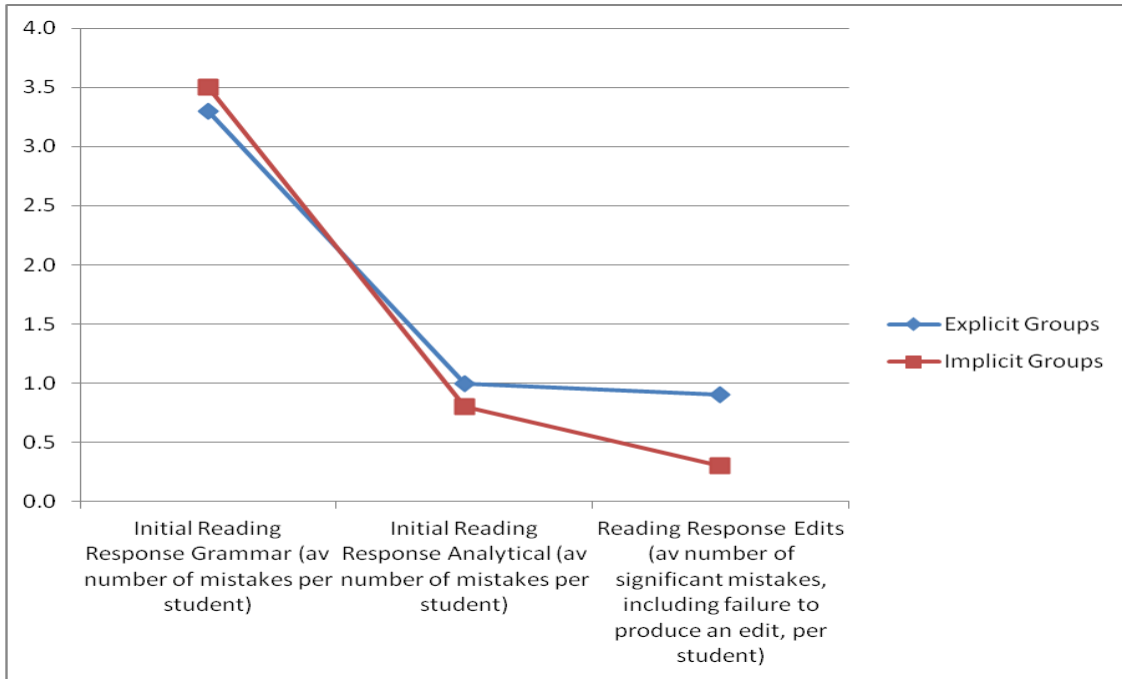


Figure 3: Graphical representation of ILAP errors.

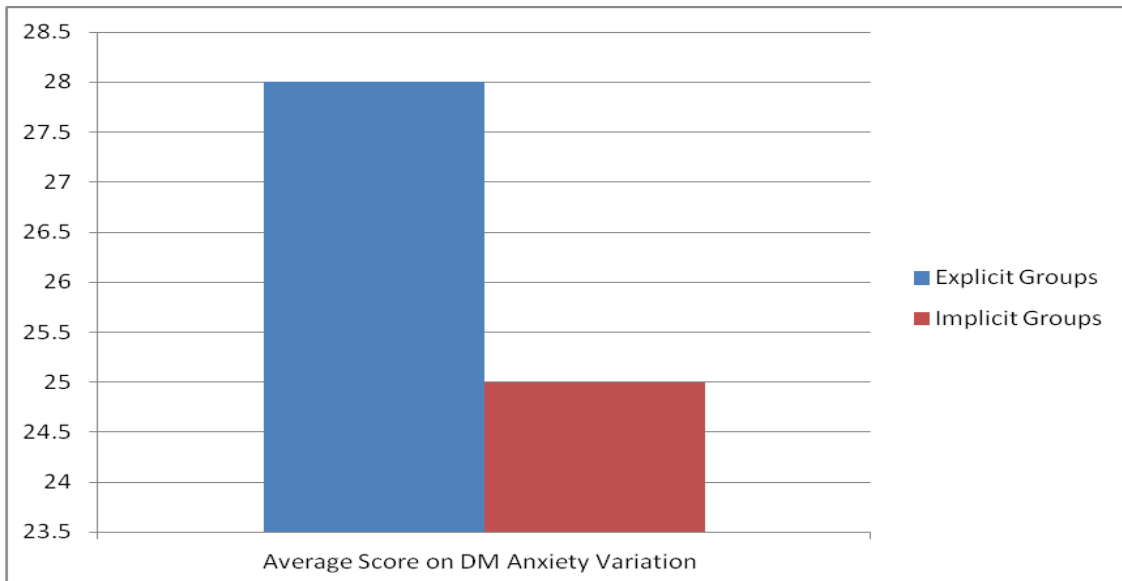


Figure 4: Graphical representation of ILAP anxiety.

Discussion

Although more research needs to be done, it is clear that our study further demonstrates the importance of integrating implicit learning into the Remedial English classroom – specifically with focus on memory, transferability, analytic performance and anxiety. If implicit learning does have the impact shown here, and further studies indicate as such, the ramifications for education would be very powerful. The most significant finding is in relation to anxiety – an issue that educators find ever present at all levels of English instruction.

CHAPTER 4

HOW IS IMPLICIT LEARNING BEST INCORPORATED IN THE CLASSROOM?

4.1. Theoretical Implications

Although there are many debates regarding the role of implicit and explicit learning in the classroom, most theorists agree that there is a need for both. Berry notes this conclusion saying that “different learning styles vary in the extent to which actions (or decisions) are driven by conscious beliefs. Hence, performance in any complex learning situation is likely to involve a subtle combination of explicit and implicit learning processes” (30). Similarly, she says, “the knowledge gained as a result of interacting with a complex learning task is likely to involve both implicit and explicit aspects, rather than being solely one or the other “(30).

Though theorists agree on interconnectedness, the order in which implicit and explicit learning should take place in the classroom is a great area of contention. Frensch and Runger created a chart describing the possible orders of implicit/explicit learning in an educational setting – including possible outcomes based on ordering and other theoretical considerations. Ultimately, different orders may be useful for different situations. As Berry notes, “people variously acquire knowledge that is abstract or concrete, general or particular, superficial or deep depending on the circumstances in which the learning occurs”

(221). For the Remedial English student who has little experience with reading and writing, either an equal blend or implicitly led process is most conducive to success. Both are shown (respectively) below.

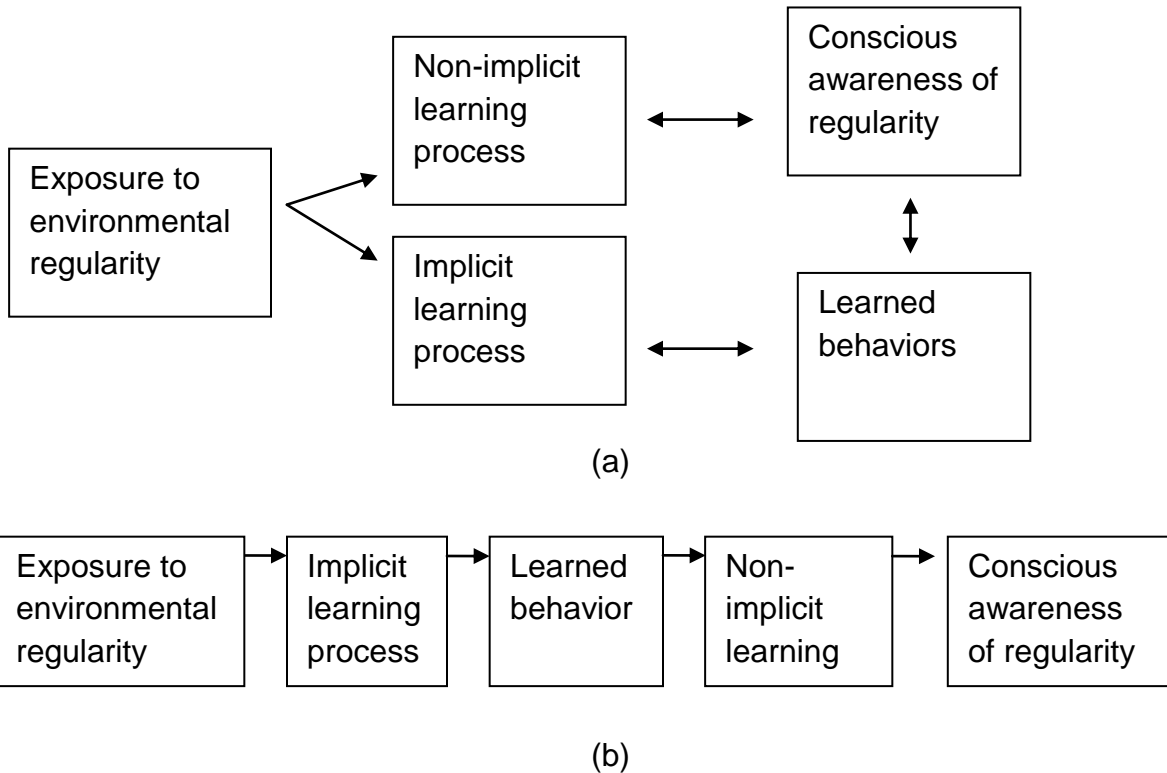


Figure 5: Frensch and Runger Chart: (a) implicit led or blended and (b) implicit led.

As demonstrated in the ILAP Test, allowing a student to engage with a subject implicitly upon introduction to the stimuli offers him the greatest sense of familiarity, which reduces anxiety and improves performance.

Theorists that believe learning always begins implicitly, hold that

knowledge can later be developed explicitly, with the goal of implicit/explicit blended action based on intimate familiarity with a subject. Kirsner et al. argue for the opposite possibility, noting that skill acquisition is developed in cognitive, associative and autonomous stages; she notes that “the three stages are said to result from a gradual shift from controlled processing to automatic processing” (84). Certainly, in college level English, the objective is to bring the student to a point where his studies become more second-nature and automatic -- implicit; whether this is achieved with initial implicit or explicit activity is uncertain. It seems though, that perhaps through the incorporation of some initial implicit learning, the student is able to more quickly gain the confidence to employ any future explicit learning strategies that may lead to a higher level of knowledge. In this way, “after behavioral mastery is achieved, the implicit representations can be redescribed into explicit forms as needed” (Kirsner et al, 158).

As mentioned previously, many theorists believe all types of learning are fundamentally more implicit than explicit and therefore implicit learning should naturally take the lead in the classroom. This is especially the case for Remedial Reading. Kirsner et al note this point, saying that reading is a process of implicitly recognizing redundancies in language. Efficient readers pay little attention to patterns in the syntactic organization and instead implicitly pick up on predictable patterns. She goes on to reiterate that reading is a natural process like initial language acquisition and that “reading failure is thought to result from methods of reading instruction that conflict with the natural course of events” (Kirsner et al,

358). Open-loop theorists agree with this position, claiming that a system of an initial implicit learning (naturally) allows the student to work uninterrupted on a project and finish up with more explicit learning such as editing much later. In both Reading and Writing Remedial courses, implicitly-led systems like this are of great benefit for the struggling student. Berry notes the power of implicitly led training, pointing out that even children learn initially with games before moving on to explicit knowledge and that implicitly-led learning may be the most heavily engrained type of learning in the human brain (131).

Regardless of exactly when they first appear in the classroom, implicit learning tasks should be consistent. One of the primary characteristics of implicit learning is that it is “continuous incremental change in the associative pattern that is sensitive to the statistical features of the set of items or events encountered” (Frensch and Runger, 17). In other words, implicit learning processes must be routine and repeated. This is known as repetition priming; it allows the student to interact regularly with the stimuli, gaining familiarity with it. Related to this is perceptual priming, a “non-conscious process that increases the facility of recognition of a perceptual pattern due to its prior exposure” (Underwood, 18). The importance of repetition cannot be overstated when considering implicit learning processes because “repetition progressively frees the mind from attention to details, makes facile the total act (of learning), shortens the time, and reduces the extent to which consciousness must concern itself with process” (Kirsner et al, 79).

One way to offer a consistent and repetitive implicit learning system is through habitual masking techniques. This may come in the form of a masked pattern in an exercise or even through instructor body language and tone inflection (pitch, amplitude, etc.). Masking is linked to the idea that implicit learning is fostered through (somewhat subliminal) techniques such as masking. Psychological Curriculum Customization (PCC) is perhaps one of the most powerful masking strategies. It is critical to implicit learning success. Finding out what motivates and rewards students (on implicit and explicit levels) can be very helpful. Catering activities to exploit positive psychological components is a sure way to enhance learner performance. Rather than a system pattern, this is a sort of psychological pattern that can be engrained into an activity – increasing its effectiveness. Schultheiss et al. cite two main types of human implicit motivation as independent or interdependent. Since most people fall in one of these two categories, it is best to provide activities that foster feelings of both independence and social interdependence throughout the duration of the course semester (383). Schultheiss et al. go on to discuss the Operant Motive Test (OMT) which identifies the implicit motive structure of an individual by classifying him as Positive Affect (PA) or Negative Affect (NA) with subcomponents of self regulation and/or incentive-based intrinsic motivation. PCC can ultimately reduce negative ideation and anxiety through mood induction manipulation and increase the productivity of implicit (and explicit) learning processes. Related to PCC is cognitive style awareness. Kirsner et al note that “decision support processes

need to be tailored to the individuals to maximize effectiveness” (299). She cites cognitive style as “the specific cognitive activities of how an individual thinks, and under what circumstances the cognitive activities are evoked, maintained and modified” (299). This is important to note in implicit learning since it is yet another tool the instructor has to create and encourage impactful implicit learning involvement.

Another critical factor in implicit learning is the importance of clearly reiterating to students when they have achieved some identifiable measure of success. Studies show that “people perform better on situations in which they have been previously successful rather than on other situations” (Berry, 103). This is especially the case with implicit learners. Even if explicit articulation is initially unavailable, students are consistently able to repeat successful patterns of implicitly learned material -- which increases their task confidence and likelihood of future success on both implicit and explicit learning tasks -- especially with positive reinforcement. Even small measures of success should be noted equally with constructive criticism during initial learning stages. Schultheiss et al. note that positive reinforcement (during implicit and explicit learning) generates commitment, sense of attainability, progress recognition, goal imagery, self regulation and emotional well being -- all which in turn result in the generation of continued commitment and subsequent learning cycle growth (362). Berry notes that “in reinforcement learning, for every action that can be performed there is an adaptive element...The action performed has some

consequence on the environment... All the network needs to know is the extent to which the consequence is reinforcing” (104).

Equally as important as positive reinforcement is the necessity of action in implicit learning. Berry notes this feature, mentioning that “the more active the nature of the learning, during the original training session, the greater the retention of this learning and the greater the transfer to new situations” (131). It is critical that the student interact directly with complex tasks so as to generate structure realization. Free-writing is a good example of active-based learning (as opposed to, for example, primarily lecture). The action should be catered toward the ideal learning experience. Gardner describes this in detail noting that free writing should be unpressured and internalized so that the writer is free from conventional restraints and can intimately connect with abstractive thought (37). In this scenario, not only does the student become acquainted with technicalities such as correct grammar and sentence structure, but he is also actively exposed to analytical and critical thinking processes that no doubt are important in the college setting.

Most theorists agree that active implicit learning involves some level of chunking. This allows the student to absorb and incorporate material into his knowledge system without data overload. Almost all theorists purport that at a fundamental level all perception and memory are “more-or-less automatic processes of chunking” (Berry, 85). As such, implicitly led chunk learning should be integrated into the Remedial English classroom so that students can become

well acquainted with one segment of knowledge before moving on to the next. This is especially important in implicit learning. Berry notes, “As well as their content, chunks have a strength parameter associated with them, which reflects how frequently and recently they have been used. Every time a chunk is used, its strength is increased” (85). In the same vein as repetition priming, chunking works by supporting the implicit learning process through cognitive behavioral reinforcement.

Of note, there is some debate regarding the role of implicit learning in the ESL classroom. Many theorists claim that explicit learning is a precursor and primary agent in second language acquisition. Some studies however, show a need for both implicit and explicit learning, indicating that with second language systems, “implicit knowledge is used to decide whether sentences are grammatically correct or incorrect, but further analysis of incorrect sentences requires more formal intervention of explicit linguistic metaknowledge” (Berry, 138). As is the case for Remedial English, the order of implicit and explicit learning is still highly debated, but most theorists do concur that both are needed.

In summary, implicit learning in the Remedial English classroom may be delivered in various orders, but the most effective seems to be implicit-led. The delivery of implicit learning systems should include a focus on repetition, masking, PCC, positive reinforcement, active engagement and chunking strategies. All of these are discussed in practical detail in the next section.

4.2 Practical Implications

This section includes various examples of how implicit learning can be used in the classroom. Educators are increasingly noting the use of journaling as one of the most impactful implicit learning processes. Susan Gardener gives one example:

Years later I can still see him hunched over his blue spiral journal, laboriously scratching words one at a time, his long legs stretched first out in front of the desk, then, as he picked up a bit of speed, scrunched under the desk while he leaned forward even closer to his paper. Laborious is an understated description of the way Teddy wrote. Reflecting now on his methods, I realize writing was actually physically painful and difficult for him. He gripped his pencil or pen too tightly, the words did not flow from the mechanical device easily, and time dragged on and on as he tried to crank out his journal write. Tall, gangly Teddy was compliant though, and kidded for his farm boy mannerisms and interests, he tried very hard to blend in with his classmates, to do the right thing at the right time. So, when his teacher asked him to create journal entries, he tried his best.

Teddy's spelling and punctuation were inventive, for the most part. His sentences ran on and on and on and on. Letters and words appeared to be enemies - scabbled onto the page as though after a fight. If given enough time, he often wrote full-page paragraphs, not knowing where to break his thoughts. Sometimes his thoughts didn't connect. They were jumbled bits that started and stopped but didn't quite follow through to a point before he started off in another direction. When he did write in the time limit provided in class, his entries were minimal - maybe three full lines - because his hand worked so slowly. Some days he couldn't write at all - the suggested topics or even the freedom to write on whatever came to mind produced no response from him.

My choice of using journals was partly based on my belief that journal writing is the most assessable of writing genres and that the journal is place where students like Teddy can succeed. In Teddy's case, the journal assignment finally worked for him after an intense service-learning project that he was a part of. He had gone to

houses in a community center in Mexico. Teddy, adept in carpentry, literally glowed when he returned to school after the trip. When I asked him to record some of his Mexico experiences in his journal, he remarked incredulously, “You mean I can write about what we did in Mexico? Cool!”

I know I had repeatedly told students that topics were open in their journals. I know I had emphasized the recording of personal experiences as an option for their entries. Somehow Teddy had not connected these instructions with himself, or never felt he had anything worth recording before. The Mexico trip did it. Teddy sat for long periods, happily scratching word after word, line after line, paragraph after paragraph recounting his time on this service-learning project. His concentration was intense; his satisfaction at producing fifteen solid pages of narrative to share was immense. He had recorded for himself, for me, for posterity his important experience. He knew I would be out there “listening” to what he had to say, and he used narrative as the most natural discourse for saying it (1-4).

This is a classic example of why consistent, personal (and natural) implicit learning is important in the Remedial English classroom. With instructor guided implicit involvement, students like Teddy can develop a sense of relation to (and success with) English studies that will impact their future academic careers forever. Certainly explicit instruction is needed as well, but a blended approach means that students who bring a great deal of anxiety to the classroom can engage in the learning process with far less fear and dread upon initial engagement; this garners a feeling of self confidence that is critical to productivity. Coupled with the myriad of other benefits of implicit learning, its effectiveness cannot be overstated. The journal is just one place where this process can thrive.

Whether in journaling or any other activity, one of the most critical

functions of implicit learning is that it involves active engagement. Ann Penrose notes the importance of engagement, stating that students are not passive receptors but active interpreters and that instructors should design activities that allow for self discovery and autonomous involvement (7). Engagement comes through the student's direct experience and connection with a subject. As Klaus notes, "Direct experience helps to stimulate their personal involvement and disposes them to engage with the subject, to think about it, rather than simply to take in information passively" (vi). All of the exercises included below are innately active and engaging and provide the student with hands-on, personal connections to their studies.

One very popular blended teaching approach in Remedial instruction is the "teach-aloud" (also known as 'read-aloud' or 'reciprocal learning/teaching') approach. Underwood notes that in AGL experiments, when subjects were asked to stop (only once or twice) during a task and give verbal instructions – as though to help someone else through the task (even if this verbalization was minimal) they began performing at a higher level. Thus implicit learning, blended with an explicit verbalization (even a limited one) can be helpful in reinforcing the material in the subject's working mental model (16). This should not be done exclusively however, as open-loop, uninterrupted learning must be made equally available to the student. Penrose notes the value of keeping think-aloud process logs as students write their papers. She says, "Through process logs and think-aloud protocols, students are able to (later) "listen-in" on their own reading and

writing processes, and to see how other writers handle similar academic tasks and choices” (10). The process log provides the student with an uninterrupted, implicit learning stage followed by an explicit, analytical stage in which they thoughtfully discover their own strengths, weaknesses and evolving, personal strategies.

Psychological Curriculum Customization (PCC) - as previously described - is another effective tool when implementing implicit learning in the classroom. It is particularly effective for implicit learning since it can be used to create activities that come more naturally to students, fostering knowledge forums that are more long-standing and ingrained. The Operant Motive Test, or OMT is often used to determine the personal, implicit motivations of students and cater lessons accordingly. Students are shown a series of pictures and asked to report their emotive responses; their responses are then used to categorize positive or negative affect with subsets of self regulation or incentive based motivation. Motivations are broken down into affiliation, achievement and power. This test is by no means exhaustive, but it can be a useful tool in better understanding the student audience. The table on the next page is a variation of the one produced by Schultheiss et al. (383).

Table 1: OMT Variation

D Microsystems	Affiliation	Achievement	Power
PA Self Regulated	Interaction, empathy	Curiosity, absorption, fun	Helping others, educating, conveying
PA Incentive Based	Extroverted, good mood	Pride, persistence, solving task	Recognition, prestige, observing others
NA Self Regulated	Needs positive reevaluation of rejection; attempts to restore positivity	Needs positive reevaluation of failure; help with identification of problems	Needs help feeling relaxed; expressing feelings
NA Incentive Based	Needs help avoiding insecurity through safety/security	Needs relief with success; is persistent	Has fear of asserting self; using power
Low PA and High NA	Struggles with rejection	Issues with stress	Issues with guilt

Given that a classroom may contain a variety of personal affects, an instructor may provide activities that cater to all operant motive types and encourage students to partake in the activities that best fit their affect. For example, PA self regulators and PA incentive based operant motive types may perform best in larger group activities that foster curiosity, group teaching and individual/group recognition. NA self regulators and NA incentive based groups may perform better in smaller groups or one-on-one sessions with the instructor (or a PA peer), focusing on problem identification, positive reinforcement, emotive outlet and stress relief. These NA students may need additional attention in order to feel they can safely express their ideas.

In addition to PCC, prosody is another effective masking tool when implementing implicit learning (and some explicit learning). Kirsner et al. notes the three different types of prosody as linguistic, pragmatic and emotional. Linguistic prosody marks boundaries between units of speech; pragmatic prosody is used for conversational purposes; and emotive prosody is typically used to identify relevant emotional states (201). All three types can be implemented in the classroom. Linguistic and pragmatic prosody can be used when reading a paragraph aloud, to indicate grammar, punctuation and thought transition. Emotive prosody can be used when instructing students on various important grammatical rules - or even to emphasize when sentences require exclamatory or interrogative punctuation. In any event, prosody is just one of the many tools that can be utilized to enhance the student's learning experience –

may it be in the implicit, explicit or blended phases.

Much has been said thus far about students forming positive associations with tasks and the unique characteristic of implicit learning to facilitate this. Kirsner et al. discuss the threat-related distracters (such as exclusively explicit grammatical instruction) that interfere with performance and elevate anxiety (241). She encourages instead, instructional approaches that utilize grouping, labeling, imagining and rehearsal techniques in an effort to enhance non-threatening, implicit learning. One of the many ways to manage imagining and rehearsal is through repetitive free writing. Elbow proposes a sort of implicit/explicit blend through self-directed editing in which students begin with free writing and then edit their own (or their peers') work with the assistance of a writing lab partner – in order to garner a sense of self confidence and autonomy. The editing is only done once or twice a semester – and only after implicit engagement has created a sense of familiarity for the student. In reading instruction, Kirsner suggests that teachers make learning scary and difficult by “breaking the whole (natural) language into (unnaturally small) bite-size, little pieces” (358). Instead, she says teachers should make exercises more meaningful by “emphasizing the process of ‘making meaning’, not just the mechanics of reading words in isolation” (358).

As mentioned, games and journaling are also useful in getting students to engage in implicit (and/or blended) learning. Gardner notes the importance of journaling, reiterating that the basic writing student often brings a lot of

resentment, anxiety and low self-confidence to the classroom. Journal entries help students to gain confidence and express a depth of writing that will be useful in future endeavors (8). Gardener calls for a more implicit-learning based model of journaling, but a blended post-editing approach could be useful as well – if done so correctly. Gardener also relays the importance of games as a sort of masking strategy to interest students in implicit engagement (and to foster future explicit learning productivity through positive association). She discusses one activity in which students take a field trip around campus, collecting items that they later describe using one word for each of the five senses. Those words are then used to create a poem or song (13). This activity engages the student with a new medium (poetry/music), increases vocabulary practice and fosters familiarity and positive, personal association with the writing process in a non-threatening way. She also notes an activity in which students take pictures that they must verbally describe (14). This allows the student to be intimately involved with his topic and encourages him to explore ideas analytically and communicatively. The importance of letting the student choose what he would like to write about is central to implicit learning since most “acquisition takes place on a subconscious level, on a trial-and-error basis; it is informal in character and occurs in natural settings that are both meaningful and functional (to the student)” (22).

There are many other examples of games and journaling that utilize implicit learning. These include script acting, ink blot descriptions/narratives, letter writing, music response and poem co-authoring. Carl Klaus provides a

unique exercise in which students translate “party-talk” into “real-talk” in a sort of correlate to the transition from casual to academic writing. Students are asked a series of personal questions such as, “Why are you going to this college?” and are then required to give simple, “party-talk” answers such as “Because it’s close to my home” or “I can use my VA benefits here.” Later, students are asked to look at their responses and consider the complexity behind their simple answers -- elaborating on their responses. This exercise allows students to actively engage with an implicit familiarity stage in their writing - with little interference from over-thinking -- but is followed by the equally important explicit stage in which they develop more complex analytical (and grammatical) processes.

At Kapiolani College in Hawaii, a family-history activity is used to engage students in implicit learning that enhances writing skills and allows students to report on events that they find meaningful. The school’s population is composed of “school graduates, adults returning to school after years of working, the handicapped, the disadvantaged, early admissions from high school, foreign students and senior citizens” (Klaus, 38), so the exercise caters to all backgrounds. The practice utilizes both written and verbal communication skills. Student are asked to interview family members about generational memories and write accounts of the people and places involved (46). This exercise allows the student to become initially implicitly and intimately connected to his topic, garnering interest and the likelihood of engagement. Just as personal and effective as family-history writing, situational journaling provides students practice

with descriptive and creative writing skills while simultaneously developing positive associations with writing -- all through implicit engagement. Klaus mentions an exercise in which students write about a time when they felt completely at ease and able to act naturally. Students expound on why they felt at ease and the circumstances surrounding this emotion (110). In this activity, the student is using writing as a tool to express a time when he felt at ease – and this means that both the activity and the subsequent associations are likely to be positive. This is a great example of using PCC in implicit learning to achieve the greatest level of success.

Creative writing skills and even research skills can be enhanced through exploratory, observational writing at the primarily implicit learning level. One such activity is a sort of anthropological “people-watching” assignment in which students visit heavily populated locales and write about the imaged histories of people they see. A variation on this is the “historical monument” exercise in which students visit an old building and write about the imagined inhabitants and events of its past (Klaus, 210). Later, students may be asked to research the actual history of the location and rewrite their papers accordingly. This is a good example of an implicitly-led, blended approach.

Journaling and games offer the student activities that they can find meaningful and more importantly, personal; without instructor input though, it may be difficult for the student to stay interested. Gardener reiterates the importance of writing about what interests the student – noting that even small

improvements such as handwriting and letter (later word and sentence) formation and recognition are fostered during activities that the student can appreciate and relate to (52). In journaling, this means students must be allowed to write about what interests them most and instructors must take the time to read journal entries and respond to the text – asking students for more details on interesting events – encouraging them to expand their thoughts and written communication on the things that matter most to them.

Even in instructor response implicit learning can take place. Gardener explains that teachers can model responses to papers with corrected grammar. For example, he says, “if a student were to write, “I must have did the wrong assignment,” a teacher could respond “No problem. As a student, I can’t remember all the times I must have done the wrong assignment” (181). This type of modeling is helpful since “such a response allows the student to focus on making meaning in a school context for a teacher-audience while at the same time allowing him or her to become more conscious of the standard forms appropriate within an academic setting”(181).

In summary, PCC, reciprocal teaching, games, journaling, free writing blend and positive association instruction all help to foster student learning – at the implicit level and in many instances at the explicit level as well – either directly or indirectly. There is no doubt that the classroom must have both forms of learning, but the impact of implicit learning is so important for Remedial English students; it must not be entirely overshadowed by explicit learning

techniques. As demonstrated here, there are a myriad of flexible options to utilize when incorporating implicit learning techniques in the classroom and the benefits are numerous.

CHAPTER 5

CONCLUSION

Through close investigation of the history and current uses of implicit learning it is clear that its place in the classroom is important. High-risk Remedial English students stand to benefit greatly from the robustness of this learning process. Incorporation in the classroom is simple. The largest roadblock is the conception that explicit learning is the only tool necessary for success. Through the reevaluation of the academic classroom and observance of mounting data in favor of implicit learning, conscientious instructors have begun to introduce more implicit learning techniques into their classrooms and as such, students are continually improving their academic performance. With continued research into the complex ways in which we learn, educators seek to utilize all the tools that may impact our students' success; implicit learning is just one such tool in the progressive educator's toolbox.

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