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RESPECT FOR THE COMPLEXITY OF HUMAN LEARNING: A PROPOSAL FOR A NEW MODEL OF TEACHER TRAINING

by/por

Muskat, Lori R. (muskat-ehdc@juno.com)

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Abstract

"Inclusion" is hard to implement worldwide. In the U.S.A. and Canada, one obstacle is the division between "general" and "special" education. To facilitate inclusion of exceptional students, a new model of teacher training is needed. This piece introduces the System for Understanding Individual Learning Performance (S.U.I.L.P.). Derived from neuropsychology, cross-cultural psychology, education, and sociology, the S.U.I.L.P. provides a holistic framework and common vocabulary for understanding learning performance in all learners--across development and different contexts. It also establishes avenues for collaboration and eventual merging of general and special education.

Resumen

La inclusión es difícil de realizar a nivel mundial. En los Estados Unidos y Canada, un obstáculo es la división entre educación "general" y educación "especial". Para facilitar la inclusión de estudiantes excepcionales se necesita un nuevo modelo de formación del profesorado. Este elemento introduce el Sistema para el Entendimiento del Rendimiento Individual en el Aprendizaje (S.U.I.L.P.). Derivado de la neuropsicología, la psicología multicultural, la pedagogía y la sociología, el S.U.I.L.P. proporciona un marco holístico y un vocabulario común para entender el rendimiento académico de todos los alumnos-- a través del desarrollo y en diferentes contextos. Esto también establece canales para la colaboración y la fusión final entre la educación general y la educación especial.

Keywords

Descriptores

1. The current context of inclusive education: A story of divided camps

The worldwide trend toward inclusive practices in education places significant stress on a system that many think is overburdened already. While admirable in theory and intent, the prevalent philosophy of including and educating children with special educational needs in mainstream or regular/general education classrooms is, in practice, infinitely more problematic (Eldridge, 1997; Alper & Ryndak, 1992; Madden & Slavin, 1983; Showers, Joyce & Bennett, 1987; Clune & White, 1988; Merton & Yarger, 1988; Sickler, 1988; Simpson & Myles, 1990).

In order to get beyond a cursory appreciation of the current problems, awareness of the broader context of inclusive practices is necessary. In the United States of America, parents and advocates worked hard over several decades in order to achieve broad public support for the education of children with "disabilities" (Audette & Algozzine, 1997; Hudson & Glomb, 1997). By exposing inadequate, sometimes abusive, treatment of individuals with various disabilities, advocates were able to

convince the broader public that people with learning disabilities are educationally "worthy" and significantly valuable to society. When individuals with disabilities were initially allowed into schools, the common practice was to place them in separate classrooms or separate facilities completely. Advocates then began the second step of their struggle--which was to help students with disabilities gain admittance into general education classes to the greatest extent possible.

Ironically, and unfortunately, Audette & Algozzine (1997, p. 38) point out that the very systems set up to facilitate disabled students' admittance into schools and general education classrooms created another set of problems: they produced a less obvious form of exclusion and isolation (Lipsky & Gartner, 1989; Ysseldyke, Audette & Algozzine, 1992). Students having "exceptional needs" were assigned an "abnormal" status. In turn, this status was then used by legislators to construct boundaries that would limit all students' entitlement to special education services. After all, if too many students were provided with special services, heads of state and federal legislators faced the specter of empty coffers. Thus, special education admissions had to be regulated (i.e., limited) and doled out only to "entitled" students.

In order to monitor the flow of students into special education, ornate classification systems were devised. Woven into the fabric of these systems, without regard to the eventual consequences, were policy boundaries between **regular** and **special** education students. More generally, these divisions applied to general education and special education **areas** as well, including educational administration, teacher training, educational programming and practices (Audette & Algozzine, 1997; Sarason & Doris, 1979).

Audette & Algozzine (1997, p. 380) assert that the boundaries between general and special education are based on some of the same "annoying" assumptions that were initially used to justify the exclusion of children with disabilities. These assumptions are: (1) relative to their nondisabled peers, children with disabilities have significantly different learning needs; (2) it is beyond the capacity of general education personnel to meet the learning and developmental needs of children with disabilities; (3) disability classifications provide precise and useful descriptions of children's learning needs; (4) services provided in special education are uniquely designed for classifiably disabled children; (5) disability classifications are useful because they provide a clear basis for excluding "unentitled" students from services that would be inappropriate for them; and (6) the processes mandated to determine disability classifications provide an effective basis for formulating Individualized Education Plans (i.e., I.E.P.s) that, in turn, meet the unique learning needs of children with disabilities.

An impressive and quickly growing body of literature refutes the validity of many of these assumptions. Numerous authors have addressed factors such as imprecise definitions of disabilities, inadequate classification practices, incomplete knowledge bases, and the overrepresentation of minority students and boys in special education (e.g., Leonard, 1991; Artiles & Trent, 1994; Stanovich, 1991; Shaywitz, Fletcher & Shaywitz, 1995; Lyon, 1994; Moats & Lyon, 1993; Anderson, 1997; Lester & Kelman, 1997; Muskat, 1996). Yet, schools in the U.S.A. continue to view the needs of students with disabilities through the distorted lens these assumptions provide. Consequently, the rigid boundary that separates general from special education stands firmly entrenched--as does the rigid boundary between general educators and special educators. Through teacher training and educational practices, these two groups of educators often have different vocabularies, knowledge bases, and status.

It is within this context of these divided educational lines that the current practice of inclusion is being applied worldwide and aspires to flourish. While few would argue against the intent to include students with disabilities to the greatest extent possible in "mainstream" classes, the deep divisions that characterize today's educational context hardly seem conducive to accomplishing this ambitious task.

Further, while the jargon, paperwork, and bureaucracy mandated by current policies often distance us from some harsh realities and obscure the very real costs in tangible human terms, thousands of students with exceptional needs are caught in a crevasse, precariously dangling in the abyss between the two camps of general and special education. These camps, while not adversaries in any strict sense, often lack a productive way in which to collaborate with one another (Idol, 1997; O'Shea & O'Shea, 1997; Cohen, Chase, Sattler & Morsink, 1997; Brady & Moats, 1997; Hudson & Glomb, 1997). Victims themselves of a system that may have already outlived its usefulness, teachers in either camp face a set of circumstances that does not provide them with the support nor the resources needed to accomplish the education of the children placed in their charge. Educational administrators struggle to please different factions in order to work out the kinks; meanwhile, well-meaning educators tire themselves enacting ineffective practices. In spite of their efforts, a vast number of students continue to face the pain of attending school daily where their needs are not met and they continue to achieve at a level below their true academic potential.

In a recent forum on international special education reform, Artiles, Fletcher & Pastore (1997) addressed some of these issues. Their descriptions of problems they have encountered in special education practices in countries such as Mexico and Spain bear similarities to those observed in the U.S.A. and Canada. These international and cross-cultural commonalities would appear to underscore the universality of the obstacles we face in implementing inclusive practices. Among other recommendations, these educators called for a breaking down of the boundaries between regular and special education and advocated increased interaction between, if not the complete merging of, the two branches.

In reality, the wheels of progress in education move excruciatingly slowly. Assimilation of new theory to replace the widely refuted ideologies now in use--and the subsequent accommodation of educational practices that would follow--are slow to occur. Thus, our current circumstances present us with the following dilemma: With the thrust toward "inclusion", students with special educational needs are currently being placed in classrooms of mainstream teachers, many of whom are not provided with appropriate training and/or support to enable them to meet their students' needs. Further, special education personnel are hampered in their consultative efforts to support mainstream teachers by a lack of awareness of mainstream teachers' needs in addition to a lack of common vocabulary with which to discuss students and the learning process.

While inclusion may be viewed by some as the first step in a process toward combining regular and special education, this step seems strangely out of sequence. It places mainstream teachers in the unenviable, stressful position of having to provide effective educational practices--that their training did not teach them--to students about whom they know relatively little. It is much more logical to lay the groundwork for inclusion by first bridging the gap and forging productive collaboration between general and special education.

2. The current context of teacher training and practice: A no-win situation?

Before accepting the solution that combining general and special education would solve many of our problems with inclusive practices, it is important to examine more closely the current context and reality of teachers' experiences and training. Eldridge (1997) recently and eloquently addressed this issue in a paper prepared for the International Association of Special Education in Cape Town, South Africa. Using the vehicle of personal narrative research, Eldridge related her experiences in Canada in three different teaching roles: as a mainstream teacher in an inclusive classroom; as a resource room teacher in a self-contained classroom while simultaneously serving as a consultant to a mainstream classroom teacher in an inclusive classroom; and as a special education teacher

with doctoral level training within a mainstream, inclusive classroom.

Of her experiences as a mainstream teacher in an inclusive classroom, Eldridge (1997) stated that she had never received any kind of training that addressed ways to integrate special needs children into her class. Her curiosity led her to begin taking courses in special education, and she eventually became a special education teacher in a self-contained classroom.

In this setting, her students had been identified as learning disabled or slow learners; students spent at least fifty percent of their school day within her classroom. Eldridge (1997, p. 5) describes the pain and frustration these students expressed about being singled out and excluded from regular classrooms. Eldridge also had the opportunity to listen to classroom teachers whose beliefs and expectations about exceptional students were significantly different from those they held for the other non-exceptional students. As has been well-documented, many mainstream teachers do not know how to handle these children or how to treat them; as a result, the teachers either exclude them, ignore them, or disregard their abilities and needs (Schunk, 1989, p. 14; Dudley-Marling, 1990; Gartner & Lipsky, 1987; Gibson & Dembo, 1984; Larrivee & Cook, 1979; Wilson & Silverman, 1991, et al). Acknowledging the similarity to her own experience as a mainstream classroom teacher, Eldridge came away with the impression that these teachers had not been appropriately prepared to understand the needs of exceptional students, nor were they given any additional resources or supports to help them cope.

Eldridge (1997) made valiant attempts to facilitate the integration of her students. She counseled them about ways to fit in and achieve success in an environment that could be threatening to them. She also tried to educate and to help classroom teachers understand the needs of these students in order to eradicate the "myth of differentness" surrounding them (Pugach & Lilly, 1984). She encountered frustration and found she often failed because teachers had a predetermined set of expectations for these

children which had been based on "objective" assessment reports that typically described students' weaknesses in greater detail than their strengths.

Wondering what other forms of education might be more suited to the needs of identified children, Eldridge then transferred to a school board that practiced inclusion for "all exceptionalities" (Eldridge, 1997, p. 6). In this setting, teachers had been eased into inclusive education through extensive in-service training, administrative support, and the guidance of a highly skilled group of resource teachers. Here, Eldridge observed the full inclusion of students with such conditions as Down's Syndrome and autism. She witnessed how slow learning students and students with learning disabilities could achieve much greater success when given a modified version of the same curriculum as their classmates. She also saw the regular education students learn to treat these students with tolerance, care and respect.

Nonetheless, Eldridge (1997, p. 6) states that she gradually became aware of a "darker side of inclusion, one that is not readily shared in the stories of special education." Eldridge found that there were some teachers whose training, or lack thereof, precluded their acceptance of certain students into their classrooms. These teachers did not seem to understand the individual learning needs of some exceptional students; thus, these students were held to the same expectations as all other students despite the fact that such expectations often proved to be a source of frustration for both teacher and student. The results of these experiences quite possibly had a lasting impact on the students, who suffered pain and humiliation at the hands of the unsuitably trained teachers.

In a further effort to understand inclusion, Eldridge (1997), by this time a doctoral level educator, decided to take a position as a regular classroom teacher in a third grade class with twenty-eight children, eight of whom were identified as exceptional and were fully included.

The identified children in my class included one child with autism, two children with attention deficit disorder (one not on any form of medication; the other on medication at the whim of his parents), one child with a learning disability and four children who were considered slow learning. I had two educational assistants who came and went at various times during the day. One of the positions of educational assistant had been changed three times in the course of five months. I also had a resource person who came in once a day for 40 minutes. Then there were three other people who visited my class from time to time. They included a psychologist, a behavioural resource person and a speech pathologist. These latter people always came without warning or appointments.

My life and the lives of students in this classroom were chaotic. The A.D.D. child needed structure and routine which I rarely felt able to provide because of the coming and going of adults. If my resource teacher was busy, he would simply not show up. The educational assistant assigned to work with this child had a scattered schedule and would work with him for twenty minutes two days a week and seventy-five the other days. Often, I would just get him settled into working quietly when someone else would just stroll in to observe or work with him...

By this point in my career, I had been teaching for seventeen years, I had extensive training in special education and I had just received my doctorate in curriculum and teaching. I had all the preparation there was to offer. What I did not have was the consistent support or the freedom to halt the change process which continued to assault us that year. I could not stop the train. I was on it and it was moving full steam ahead (pp. 8-9).

Eldridge's experience reminded her of Dewey's (1938, p. 47) warning that "failure to adapt to the needs and capacities of individuals may cause an experience to be non-educative." Eldridge stated that there were many times when she felt that her class was, indeed, "non-educative."

In an effort to pull all of her experiences together, Eldridge (1997) has constructed a vision of a developmental perspective for the future of inclusion. Key recommendations she has offered include: (1) the reduction of regular class sizes when there is a high number of exceptional students included; (2) improved training for all teachers to facilitate the understanding of exceptional students' needs as well as the formulating of appropriate expectations for them; and (3) the inclusion of teachers in decision-making since they are the ones ultimately responsible for educating students in inclusive classrooms. With reduced class size and effectively trained teachers, Eldridge maintains that the need for support specialists (i.e., speech and language pathologists, resource room teachers, etc.) could be eliminated except in the case of students with profound disabilities. As a result, she believes her vision would also be a cost-saving venture.

3. Merging general and special education: "Reinventing special education"

Rooted firmly in the day-to-day lives of teachers and students, Eldridge's compelling account of her teaching experiences paints a poignant picture of the harsh realities of current inclusive practices. Inherent in her account is the strong message of the caution needed in designing, proposing and implementing solutions for some of the problems we face, worldwide, in our efforts to include children with disabilities in the mainstream more effectively. The boundaries between general education and special education stand fast and firm, supported by erroneous assumptions, outdated educational practices and a lack of well-established avenues for constructive collaboration. Conscientious individuals may try to merge the two areas and to become agents of change through advanced education, but they can be thwarted by the inadequacies of a system where this arbitrary dichotomy is woven into the fabric. When forced to straddle two camps that are often moving in different directions, one is likely to have energy for little else.

Eldridge is not alone in pointing out short-comings in current teacher training practices. Recent research literature in this area reflects that, among other things, current teacher training does not provide an adequate knowledge base in terms of: (1) understanding processes involved in learning for all learners; (2) understanding the needs of exceptional learners; (3) understanding motivational and affective aspects of learning; (4) understanding learning within a developmental context; (5) understanding the interaction of learning environments, teaching styles, and individual learning styles; and (6) possessing skills needed for successful collaboration among educators (Levine, 1987; Lerner, 1997; Brady & Moats, 1997; Lyon & Moats, 1997; Speece, 1993; O'Shea & O'Shea, 1997; Hudson & Glomb, 1997; Cohen et al., 1997; Idol, 1997). This set of circumstances is particularly unfortunate in view of the virtual explosion in technology, neuroscience and educational research that has occurred over the past quarter of a century (e.g., Chase, Rosen & Sherman, 1996). While far from understanding all there is to know about the human brain and how it processes information, we certainly know significantly more now than we ever have before. However, the integration of this knowledge into teacher training and the application of it into teaching practices is proceeding at a dangerously slow rate.

Audette & Algozzine (1997; 1992) assert that our new technologies and expanding knowledge of human learning and development provide a basis for improved methods of assessing and addressing students' learning needs. Consequently, these authors advocate that it is time for us to "re-invent special education" (p. 378). Similar to the recommendation of Artiles, Fletcher & Pastore (1997), they propose that federal and state agencies join forces to support partnerships between general and special education. Along these lines, a key recommendation involves the support of new visions in understanding the learning needs of all students, disabled and nondisabled, alike.

4. Respect for the complexity of human learning: A proposal for a new model of teacher training

Ironically, just as the information explosion provides illumination of some issues and leads some authors to believe that we could formulate improved methods, it also serves to obscure some issues as well. In a keynote address to a meeting of special educators in Brighton, England, Pino (1995) attempted to quantify the growth of knowledge since the beginning of recorded history. After illustrating how much more factual knowledge there is to know at present--and how that quantity is growing exponentially by the decade--Pino made a strong plea for new curriculum designs that enable individuals to be better gatekeepers of information. In essence, none of us has the capacity to store the amount of factual knowledge that now exists in the world, so we all need to become better at discriminating essential from nonessential information, condensing information, and knowing how to locate information when we need it.

Although Pino (1995) was talking about curriculum issues for grade school students, his remarks are applicable to the field of education and the training of teachers as well. As it has with many fields of study, the overwhelming complexity and volume of information available today has led to fragmentation and oversimplification in the field of education. Consequently, many individuals know a lot about a few areas, but relatively few know enough about the big picture (i.e., the overriding context). At a glance, we see the deep division between the branches of general and special education. With a closer look, however, more far-reaching fragmentation becomes apparent within each branch. Among general educators, there is fragmentation between elementary, middle school and upper school educators and administrators, in curriculum content, and in teaching methods. Among special educators, the same fragmentation exists between elementary, middle and upper school level personnel as well as in training and areas of expertise. Further, in special education, various personnel from many

different disciplines (i.e., speech and language, psychology, occupational therapy, etc.)--each having its own vocabulary--may deal with students who have disabilities. This far-reaching fragmentation is reminiscent of the proverbial blind man with the elephant: varying points of view, training and experience lead many educators to look at the same student and to see something different.

The situation does not end there, however; it becomes infinitely more complex when we remind ourselves of the vast diversity of students in inclusive classrooms. In the third- grade class that Eldridge taught, in addition to twenty "nonexceptional students" whose learning styles probably differed from one another to some degree, she also had eight "exceptional" children whose classifications included autism, attention deficit disorder, and slow learning. In my own experiences as a clinician and educational consultant in the U.S.A., I have seen students with additional conditions such as dyslexia (i.e., specific learning difficulty), fetal alcohol syndrome, Asperger Syndrome, Noonan's Syndrome and other genetic syndromes, mild to severe head trauma, cerebral palsy, longstanding Lyme Disease, and visual and hearing impairments--all placed within inclusive classrooms. The learning profiles, underlying information processing capacities, and learning needs of each of these students may be completely different, yet, current educational practices lack a model and a language by which to identify, understand, and address these differences (Muskat, 1997; Brady & Moats, 1997). Given the current scenario, is it any wonder that general and special education personnel have trouble working collaboratively? The truth of the matter is that they have trouble working individually as well.

After conducting a recent literature survey of a relatively small slice of the education field, Lyon & Moats (1997) suggest that research regarding effective interventions with reading-disabled students may be focusing too narrowly. They advise that the scope of research be broadened to include affective and motivational variables as well as interactions among teaching styles, student learning styles, and learning environments. I agree with these authors, but I carry their observations even further: the entire field of education focuses too narrowly--and we train our teachers too narrowly as well.

For example, many educators are not trained adequately in developmental issues. Consequently, such issues often provide a source of confusion, obscuring underlying similarities between a student's symptoms that may appear to be different on the surface at different points over the course of development. Lerner (1997, p. 355) points out that it is somewhat predictable that when a child exhibits a language difficulty in one form, the underlying language deficit often reappears in other forms. Thus, a child who presents with a language delay at the age of five years may have a reading disorder at the age of eight years, and a writing disorder at the age of fourteen years (Lyon, 1995, 1996; Mann, 1991; Sawyer & Butler, 1991). In actuality, these are all manifestations of the same underlying problem. However, current educational practices lack a model and a language by which teachers can understand, identify, and address these underlying similarities. If such a model existed, proactive intervention could be enacted more often and offered to students in order to prevent unnecessary hardship. In addition, a continuous vision of a student's development would facilitate meaningful dialogue and collaboration between elementary, middle, and upper school teachers because the problems encountered at different grades would no longer appear to be discrete occurrences; the relationship between them would be apparent and understood.

In order to be more effective than the current models in use, a new model of teacher training must include five key elements: (1) a more holistic, comprehensive, multidimensional and integrated view of students and their capacities; (2) the placement of learning capacities within a broad continuum that encompasses "normal" and "exceptional" performance--so that all learners can be understood in relation to one another; (3) relevance and applicability to general and special educators; (4) the opportunity

to account for the contributory effects of different contexts and teaching styles (Levine, 1987; Speece, 1993); and (5) continuity when applied to students at different stages of development. Without these elements, I do not believe it is possible to merge general and special education, nor is it possible to hold a coherent view of the development and progression of students through their school years.

5. A conceptual approach to teacher training

In formulating any conceptual model, two truths are instructive. First, Thayer (1973) reminds us that "any way of seeing is a way of not seeing." Second, Gordon (1984) observes that the instrument through which one looks has a profound impact on that which one sees. To the extent that a conceptual model acts as an instrument which shapes our perceptions, it is effective only in so far as it enables us to see more with it than we would without it.

In reviewing existing models in related fields, the field of neuropsychology provides fertile ground for exploration and application to teacher training. The fundamental assumption of neuropsychology is that the brain mediates behavior, including the behaviors that underlie learning performance (Fennell, 1995). Neuropsychology tends to view human information processing as involving such components as attention, auditory and visual memory under varied conditions, fine motor skills, expressive and receptive language processing, alpha-numeric symbols, executive functions (i.e., mental control processes that involve planning, monitoring, organization, regulation, or meta-cognition), psychosocial skills (e.g., affect, social cognition, interactional skills, motivation), cognition (e.g., level of abstraction; reasoning and problem solving), reading (e.g., accuracy of decoding, sight word recognition, rate, comprehension), and writing (Berninger & Abbott, 1994).

Within the last fifteen to twenty years, the field of neuropsychology has intersected with the field of education and learning disabilities in a variety of ways. Neuropsychologists have become actively involved in research in the field, neuropsychological concepts have been applied to the teaching and understanding of learning and learning dysfunctions, and neuropsychological evaluations have been used to diagnose learning problems.

The neuropsychological evaluation of individuals has proven to provide valuable information regarding remedial/instructive approaches. A major shortcoming of this mode of assessment, however, is that it is time consuming and not cost effective. Although there will always be a small percentage of students whose needs are exceptional enough to warrant comprehensive, individualized assessment, many students could be better understood in a more cost effective manner through training teachers to apply a neuropsychological model to students' learning performance more generally.

If applied correctly, a neuropsychological model could provide more specific information than that which is currently gleaned from most school-based assessment procedures. More comprehensive education of teachers with regard to the underlying processes involved and manifest in normal and exceptional learning behavior would serve to enhance their ability to formulate more effective interventions. It would also lead to a better understanding of students developmentally by illuminating the different manifestations of the same underlying processes over time and with maturity. Further, I also believe that a neuropsychological model could facilitate administrators' better grouping of students by providing them with more relevant information about the degree of structure that a student requires.

Such a model must go well beyond the context of the individual, however, in order to capture the complexity of human learning performance. It must also include the "ecological system" (Lerner, 1997, p. 113). Lerner describes the ecological system as being comprised of the multiple environments within which a person lives and grows (i.e., home, school, social group, culture). By applying an approach that provides an in-depth understanding of individual learning processes across development and

within different contexts, our educational systems would show more appropriate respect for the complexity of human learning and for all students as well.

6. System for understanding individual learning performance

In this vein, I introduce the System for Understanding Individual Learning Performance (S.U.I.L.P.) (see Footnote 1). The S.U.I.L.P. essentially involves 112 key variables associat-

ed with human learning performance. These variables are organized into two major domain categories: the *Environmental Domain* and the *Individual Domain*. The Environmental Domain consists of six major domains, each of which is further subdivided into eight sub-domains. The Individual Domain consists of eight major domains, each of which is further subdivided into eight sub-domains (see Table 1).
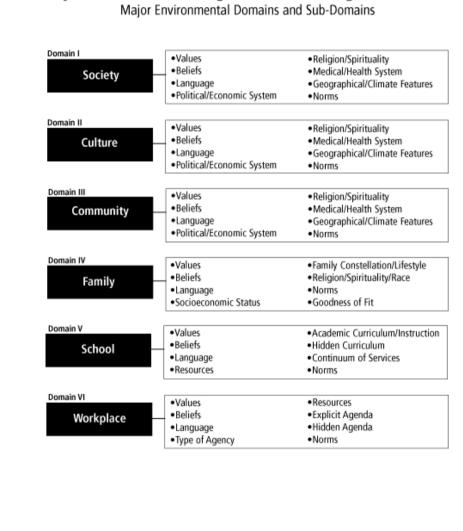
System for Understanding Individual Learning Performance (S.U.I.L.P.)

Environmental Domains (ED) = 6*

Domain I	Society
Domain II	Culture
Domain III	Community
Domain IV	Family
Domain V	School
Domain VI	Workplace

*(Each Environmental Domain is broken down into 8 Sub-Domains)

Total Environmental Sub-Domains = 48

Individual Domains (ID) = 8*

Domain I	Executive Function / Attention
Domain II	Intellectual Attributes / Problem Solving
Domain III	Language
Domain IV	Memory
Domain V	Perceptual Motor / Motor
Domain VI	Psychosocial
Domain VII	Academic Skills
Domain VIII	Life Skills

*(Each Individual Domain is broken down into 8 Sub-Domains)

Total Individual Sub-Domains = 64

Total S.U.I.L.P. Sub-Domains = 112

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Table 1

The Environmental Domain takes into account the *ecological system* within which learn-

ing occurs (Lerner, 1997). Learning competence and performance depends upon positive

interactions of multiple environments such as culture, social group, home/family, and school. Lerner (p. 113) asserts that "teachers should recognize the effects of the ecological system, realizing that learning, attitudes, and progress depend on positive interactions with the various environments."

Environmental Domain variables have been derived from the fields of cross-cultural psychology and sociology (Dana, 1993; Calhoun, Light & Keller, 1997; Ferrante, 1998). Environmental Domains include: I - Society; II - Culture; III - Community; IV - Family; V - School; and VI - Workplace. Each Environmental Domain area is further divided into eight sub-domain areas each (see Table 2).

System for Understanding Individual Learning Performance
Major Environmental Domains and Sub-Domains

Domain I — Society
- Values
- Beliefs
- Language
- Political/Economic System
- Religion/Spirituality
- Medical/Health System
- Geographical/Climate Features
- Norms

Domain II — Culture
- Values
- Beliefs
- Language
- Political/Economic System
- Religion/Spirituality
- Medical/Health System
- Geographical/Climate Features
- Norms

Domain III — Community
- Values
- Beliefs
- Language
- Political/Economic System
- Religion/Spirituality
- Medical/Health System
- Geographical/Climate Features
- Norms

Domain IV — Family
- Values
- Beliefs
- Language
- Socioeconomic Status
- Family Constellation/Lifestyle
- Religion/Spirituality/Race
- Norms
- Goodness of Fit

Domain V — School
- Values
- Beliefs
- Language
- Resources
- Academic Curriculum/Instruction
- Hidden Curriculum
- Continuum of Services
- Norms

Domain VI — Workplace
- Values
- Beliefs
- Language
- Type of Agency
- Resources
- Explicit Agenda
- Hidden Agenda
- Norms

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Table 2

Individual Domain variables have been derived based on a neuropsychological model of information processing. They also extend beyond such a model to include an emphasis on psychosocial issues, academic functioning, and life skills (Levine, 1987; Gardner, 1983; Lezak, 1983; Luria, 1973; 1970; 1966; Cronin, 1996). The eight major Individual Domain areas include: I - Executive Function/Attention; II - Intellectual Attributes/Problem Solving; III - Language/Auditory Processing; IV - Memory; V - Perceptual Motor/Motor; VI - Psychosocial;

VII - Academic Skills; and VIII - Life Skills. Each Individual Domain area is further divided into 8 sub-domain areas each (see Table 3).

System for Understanding Individual Learning Performance
Major Individual Domains and Sub-Domains

Domain I — Executive Function/ Attention
- Attention/Concentration
- Impulsivity/Disinhibition
- Organization/Strategy Formation
- Shifting/Maintaining Set
- Time Sense
- Processing Speed
- Mental Stamina
- Self-Monitoring

Domain II — Intellect'l Attributes/ Problem Solving
- Concept Formation
- Integration
- Generalization
- Verbal Ability
- Visual Spatial Ability
- Logical/Mathematical Ability
- Musical/Rhtythmic Ability
- Bodily/Kinesthetic Ability

Domain III — Language/Auditory Processing
- Auditory Acuity
- Phono. Processing/Aud. Discrim.
- Listening
- Oral Expression
- Auditory Attention
- Auditory Memory
- Language-Based Academics
- Language Pragmatics

Domain IV — Memory
- Storage
- Retrieval
- Auditory Memory
- Sequential Memory
- Sound/Symbol Associative Recall
- Visual Memory
- Spatial/Kinesthetic Memory
- Working Memory

Domain V — Perceptual Motor/ Motor
- Visual Acuity
- Visual/Sensory Motor Integration
- Visual Tracking/Attention
- Perceptual Organization
- Fine Motor Skills
- Gross Motor Skills
- Graphomotor Skills
- Reading of Nonverbal Cues

Domain VI — Psychosocial
- Personality Organization
- Identity Development
- Social Skills
- Emotional Controls
- Situational Stressors
- Judgement
- Insight
- Supports/Resources

Domain VII — Academic Skills
- Reading: Mechanics
- Reading: Comprehension
- Written Language: Mechanics
- Written Language: Theme
- Computational Math
- Applied Math
- Content Areas
- Study Skills

Domain VIII — Life Skills
- Level of Independence
- Judgement
- Communication
- Self-Care/Home Care
- Financial Planning
- Cooking
- Transportation
- Community Integration/Leisure

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Table 3

My goal in the implementation of the S.U.I.L.P. is to facilitate inclusive education by: (1) providing school administrators and teachers with a common language and vocabulary with which to talk about learning and education; (2) creating a common knowledge base for all teachers in order to forge avenues for more constructive collaboration; (3) bridging the gap between general and special education with the ultimate goal of combining the two; (4) empowering teachers by providing them with a viable framework through which to understand the major factors associated with human learning performance; (5) empowering students by enabling their teachers and school administrators to view them in a more integrated, holistic, multidimensional and coherent manner than routinely occurs at present; and (6) to the extent

that the first five goals are realized, facilitating consistent and continuous curriculum planning over the course of a student's school years-- including a smooth transition from the role of student to adult as well as entry into the labor force in the post-secondary school years.

7. Conclusion

A contextual and experiential overview of the current practice of inclusion reflects some serious problems in its implementation worldwide. Exploration of these problems in the United States and Canada illustrates a deep division between "general" and "special" education "camps." Changes in the current system are necessary in order to facilitate the inclusion of students with disabilities into the mainstream more effectively. Foremost among these changes is the formulation of a new model of teacher training. In this piece, a proposal for such a model has been offered: the System for Understanding Individual Learning Performance (S.U.I.L.P.). Drawing upon fields of neuropsychology, education, cross-cultural psychology, and sociology, the S.U.I.L.P. provides a holistic, integrated framework and a common vocabulary for understanding human learning performance in "exceptional" as well as "normal" learners--in different contexts and across development. In so doing, it establishes an avenue for more effective collaboration between general and special education and a route to the eventual merging of the two camps. United in our efforts, we can invest more energy in our students; after all, it is for them that the system exists.

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Footnotes

Footnote 1. Due to length limitations, the S.U.I.L.P. is provided here in outline form only. A lengthier manuscript is available in which all domain and sub-domain areas are defined and framing questions provided. Requests for additional information should be directed to:

Lori R. Muskat, Ph.D.
Eagle Hill Diagnostic Clinic
45 Glenville Road
Greenwich, CT 06831
U.S.A

Fax #: 203-861-9745
E-mail: Muskat-EHDC@juno.com

ABOUT THE AUTHORS / SOBRE LOS AUTORES

Muskat, Lori R. *(muskat-ehdc@juno.com)*. Eagle Hill Diagnostic Clinic. Greenwich, CT., U.S.A.

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