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Improving Self-organization and Self-efficacy of Diverse Occupational Therapy students: The Development of the Embodied and Embedded Motor Skills Curriculum

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Abstract

Being organized and confident in our movements and thoughts is necessary to achieve a desired outcome. Motor, process, and social interaction performance skill training is therefore part of contemporary occupational therapy (OT) training. Also prioritized is building awareness of cultural, social and economic diversity, inequity and the need for inclusion and representation within the OT profession. The US OT Practice Framework emphasizes the embeddedness of clients and their activities in personal and sociocultural contexts.

Less attention has been paid to the learning process, self-organization, and self-efficacy of diverse OT students as they prepare for hands-on interventions with future clients. Minimal literature is available about their own somatic awareness and embodied understanding of the motor skills they teach their clients. A decade of observing clinical labs at historically Black Howard University (HU), and a recent survey of HU OT students, reveal their quest for embodied motor learning, and for guidance in organizing kinesthetically for client encounters.

Researching these observed and voiced needs stimulated the development of the Embedded and Embodied Motor Skill Curriculum (EEMSC). The curriculum is grounded in evidence-based OT research and in the Feldenkrais Method® of somatic education.

The Kern 6-Step Approach to curriculum design was used to develop the program. It is envisioned that applying somatic learning in clinical interventions with underserved population will be empowering and enabling for both OTs and their clients and contribute to the process of knowledge translation between practice and research.

Keywords: motor skills, integrated learning, somatic education, clinical skills, self-organization, self-efficacy, diverse students, learning styles, curriculum development, Kern 6-step approach, Feldenkrais Method®

1. Introduction

Occupational therapists (OTs) aim to enable clients to engage skillfully in their personally and ecologically relevant daily life tasks, encompassing self-care and care for others, health management, work, formal and informal learning, play and leisure, rest/sleep, and social participation. To perform these tasks well—efficiently, effectively, even gracefully—necessitates *performance skills*: observable, goal-directed actions that include motor skills (how a person moves their body and interacts with objects), process skills (thinking and planning to carry out activities), and social interaction skills (verbal and nonverbal communication and adapting to social contexts) (AOTA, 2020). OT services often include hands-on facilitation of performance skills embedded in the specific life context, occupations, and goals of the client. OT students learn about the importance of all three types of performance skills in their academic training on campus, and they observe and practice the facilitation of these skills in fieldwork with experienced OTs. These are established components of training offered worldwide as a bachelor's and/or master's degree program, and in the United States and Canada, now also as a clinical doctoral program (OTD).

This project focuses on the domain of motor performance skills—such as positioning, reaching, grasping, coordinating, pacing, and more—as foundational not only to the functions OTs assist their clients to improve or restore, but to the learning and practice of the OT profession itself. Research publications detailing the role of OTs in training and retraining of motor skills and tasks have been available for more than 30 years (Burgess 1989; Ferguson & Trombly 1996; Jarus, 1994; Poole, 1991). It is well understood that motor learning can only be experiential—"learning by doing" (Rogers,

1969), as in the apprenticeship model of skill training that predated universities—and significantly self-directed. It is also understood that motor learning can take place only if the client has multiple practice opportunities across several real environmental contexts (Pendleton & Schultz-Krohn, 2018). In these contexts, with the assistance of the therapist, clients develop their own strategies for effective movement in relation to objects and structures in their environment (Gillen, 2016; Sabari 1991, 2016). The Person-Environment-Occupation Model (Law et al., 1996) and similar models are widely used in OT practice. Further, it is recognized that, as in its crucial role in infant development, adult motor learning is "embodied, embedded, enculturated, and enabling" (Adolph & Hoch, 2019); thus, the embeddedness of clients in their context, both personal and sociocultural, is emphasized in the US-American OT Practice Framework.

These learning process principles also apply to OT students. While the importance of understanding the learning styles and context-embeddedness of OT *clients* is integral part of clinical training and practice, research into the context of OT *students* is still needed. According to the Census Bureau, 88.6 % of OTs in 2020 were female and 80.8 white (Data USA, 2023), but the representation of people of color in the profession is on the rise (AOTA, 2022). Research on diversity in the study of economics reported that despite significant differences in their life contexts, "European-American females, Hispanics and African-American students" share a tendency to learn better within experientially based pedagogies than from traditional lecture mode, and to identify in the Kolb assessments as "accommodators" who take in information from concrete experiences and process it through active experimentation (Bartlett, 1996). Experiential learning includes both the learning of a particular subject or content and learning about one's own learning process (Kolb & Kolb, 2012). Bringing subject knowledge and hands-on approaches together and focusing on the needs of the individual learner have been discussed internationally among educators including Dewey (1938), Rogers (1969), Tyler (1969), Taba (1962), and Vygotsky (1978), and have been applied in curriculum development since the beginning of the 20th century. Contemporary OT curriculum designs and the Accreditation Council for OT (ACOTE) recognize the importance of experiential components in academic learning within the classroom setting (ACOTE, 2023; Coker, 2010; Howard University, 2021; Knecht-Sabres, 2013; Rezaee, Rassafiani, Khankeh & Hosseini, et al., 2014) and include student-centered, nonlinear, developmental, and experiential learning opportunities. Settings are labs in a classroom, fieldwork, and community settings.

With the development of neuroscience and the increasing evidence for neuroplasticity, remediation and restoration approaches have been expanding (Farber, 1989; Masaki & Summer, 2012; Nilsen et al., 2015; Ossmy & Mukamal, 2018; Roemmich & Bastian, 2018). A further milestone in the understanding of learning processes has been research on early development as a dynamic system (Smith & Thelen, 2003) in which motor learning plays a central role. Research on motor learning, motor skills, and how neuroscience informs OT have been integrated into academic OT training and curriculum development in the classroom and in fieldwork placement. Balancing this science orientation, the increasing openness to the use of complementary and/or integrative approaches, such as mindfulness, in working with clients, and the inclusion of self-awareness, body awareness, body-mind work and proprio- and interoception in standard textbooks and curricula documents, enrich the postulate of OT having a holistic perspective (AOTA, 2023). And yet, minimal OT literature is available about students' *own* somatic self-awareness: their embodied, experiential understanding of the motor skills in which they practice guiding others and which they themselves will rely on in hands-on interventions with future clients. This could be viewed as understandable, because priorities in an academic setting are knowledge-based assessment and intervention learning—a leap from thinking into doing. However, there is evidence that the discipline of *somatic learning* can further support that leap, and so enrich the learning and practice of OT—and that students perceive a need for what it can offer.

Somatic or embodied learning (the terms are used interchangeably) draws from an experiential understanding and is a nonlinear process (Feldenkrais, 2009). It connects bodily sensations to cognition (Rigg, 2017) and enables self-organization and self-efficacy (Hillier & Worley, 2015). Beyond specific skills, developing somatic self-awareness confers refinement of motor control, requisite for every purposeful activity (Burgess, 1989); improvement in the organization of one's movements and thoughts, necessary to achieve a desired outcome (AOTA, 2020); and clarification of the self-image that governs our actions, integrating the components of movement, sensation, feeling, and thought (Feldenkrais, 2009). Motor skill development is known to be interlinked with psychological functions (Adolph & Hoch, 2019), and practicing skills in the light of somatic self-awareness heightens self-efficacy—confidence in one's own competency to meet expected and unexpected challenges—nationally and internationally acknowledged as important for learning (Bandura, 1995; Bush, Powell & Herzberg, 1993; Powell & Herzberg, 1993; Triantoro & Alay, 2013; Wu, Zheng & Guo, 2020). Already in 1994, the Self-Efficacy Gauge documented the connection of OT student and practitioner performance to their perceived self-efficacy (Gage, Noh, Polatajko & Kaspar, 1994), confirmed by studies in Norway (Opseth et.al., 2017) and Israel (Fogel & Lamash, 2021).

Having observed OT students during clinical labs for more than a decade at historically Black Howard University HU), I conducted a survey of second-year students about their preferred learning styles and their self-perceived needs for

acquiring clinical skills. As their preferred learning styles, most study participants chose *kinesthetic* and *visual*, especially in combination: practicing, observing, and again practicing hands-on clinical tasks. A study of medical students at the Sharda University in India also reported a kinesthetic learning preference (Kharb, Samanta, Jindal & Singh, 2013). Asked what they felt they needed most to be prepared for hands-on interventions with future clients, the OT students' first choice was *getting organized in their own motor coordination* during a patient encounter and any unexpected changes in it. These findings stimulated the development of the Embedded and Embodied Motor Skill Curriculum to meet students' observed and voiced need for self-organization and self-efficacy training.

The Feldenkrais Method® of somatic education was chosen for this curriculum because it reconciles the scientific and holistic perspectives that already coexist in OT training in a unified approach that is simultaneously experiential and neuroscience-driven. In this approach, *movement* is understood as a uniquely direct and potent means of improving the self, because it is the formative medium of early development (Shelhav, 2019); it involves multiple brain areas, autonomic, sensory, motor, emotional, and cortical (Russell, 2017); and movement performed mindfully affords opportunities to become aware of habits and to discover alternatives (Feldenkrais, 2009). Dr. Moshe Feldenkrais, the founder of the Feldenkrais® method, was a refugee from more than one totalitarian regime and put a high value on human freedom and dignity.

Thanks to available technologies like functional MRIs, brain processes can now be visualized in real time and documented. Studies of sensory evoked neural activity suggest that not only voluntary physical movement but also action perception contributes to motor skill improvement via visual, auditory, and proprioceptive sensory input (Ossmy & Mukamel, 2018). Neurobiological research in the field of action observation proposes that visual signals from the movements of others are mapped onto motor circuits for learning via our somatosensory system, and learning can occur via observation of a tutor (McGregor, Cashaback & Gribble, 2016). This provides evidence for the connection between cognition and motor learning. Representatives of both a cognitive learning theory perspective (Masaki & Sommer, 2012) and a behavioral theory approach (Roemmich & Bastian, 2018) agree on this. According to Schmalzl and her team, cognitive neuroscience itself has witnessed a shift from mostly abstract and computational views of the mind to more embodied and situated views (Schmalzl, Crane-Godreau, & Payne, 2014).

Research on the Feldenkrais Method®, specifically verbally guided Awareness through Movement® lessons, has identified the method as effective especially in the areas of self-efficacy (Fonow, Cook, Goldsand & Burke-Miller, 2016; Hillier & Worley, 2015; Goldman Schuyler, 2010); functional mobility training (Connors, Galea, Said & Remedios, 2010; Hillier, Porter, Jackson & Petkov, 2010; Nambi, Trivedi, Momin, Patel & Panchili, 2014; Palmer 2017; Stephens, DuShuttle, Hatcher, Shmunes & Slaninka, 2001; Teixeira-Machado et al., 2017; Ullmann, Williams, Hussey, Durstine & McClenaghan, 2010; Vrantsidis et al., 2009); and academic learning processes (Gil, 2021). Computer scientist Aharonov and neurophysiologist and Feldenkrais® trainer Almagor recently started a project that incorporates movement learning into public school teaching of mathematics (Headstart, 2022). Performing arts disciplines have been integrating Feldenkrais® into their curricula since the evolvement of the method in the 1970s (Igweonu, 2019; Worth, 2015) and research in sport psychology attended to mindfulness-based interventions including the Feldenkrais Method® (Mattes, 2016). The Feldenkrais Method® has been called a "Western form" of mindful movement with the potential to enhance the ability to discover flexible and adaptable behavior (Buchanan & Ulrich, 2001) and is considered a complementary health approach by the National Institutes of Health (National Center for Complementary and Integrative Health [NCCIH], 2022).

Curriculum development and design of the Embodied and Embedded Motor Skill Curriculum (EEMSC) has been based on evidence-based OT practice and research, Feldenkrais Method® practice and research, and the Kern 6-Step Approach to curriculum design. The goal is to enrich OT students in their motor and self-efficacy skills for future client encounters. The project also aims to contribute to knowledge translation between practice and research (Lencucha, Kothari & Rouse, 2007).

2. Program Development Process

Qualitative and quantitative methodologies were employed, using the Kern 6-step approach to curriculum design. Developed as a framework by Kern and his team (Kern, 1998; Thomas, Kern, Hughes & Chen, 2016), the approach is widely used in medical education contexts (Singh, Gullett &Thomas, 2021; Sweet & Palazzi, 2015). It includes social processes, a bottom-up approach, and accountability for the outcome of an intervention.

The six steps consisted of (i) problem identification and general needs assessment, (ii) targeted needs assessment, (iii) goals and objectives, (iv) educational strategies, (v) implementation, and (vi) evaluation.

To identify the problem and assess the need for the proposed curriculum, I performed a review of available literature, analyzed findings from a survey of students, and conducted a content analysis. From this, I developed objectives, and educational strategies and options for the curriculum's implementation. and skills evaluations of the students evaluation,

building in a provision] for feedback to continuously refine the program—for learning and teaching are dynamic processes, as reflected in the Kern approach.

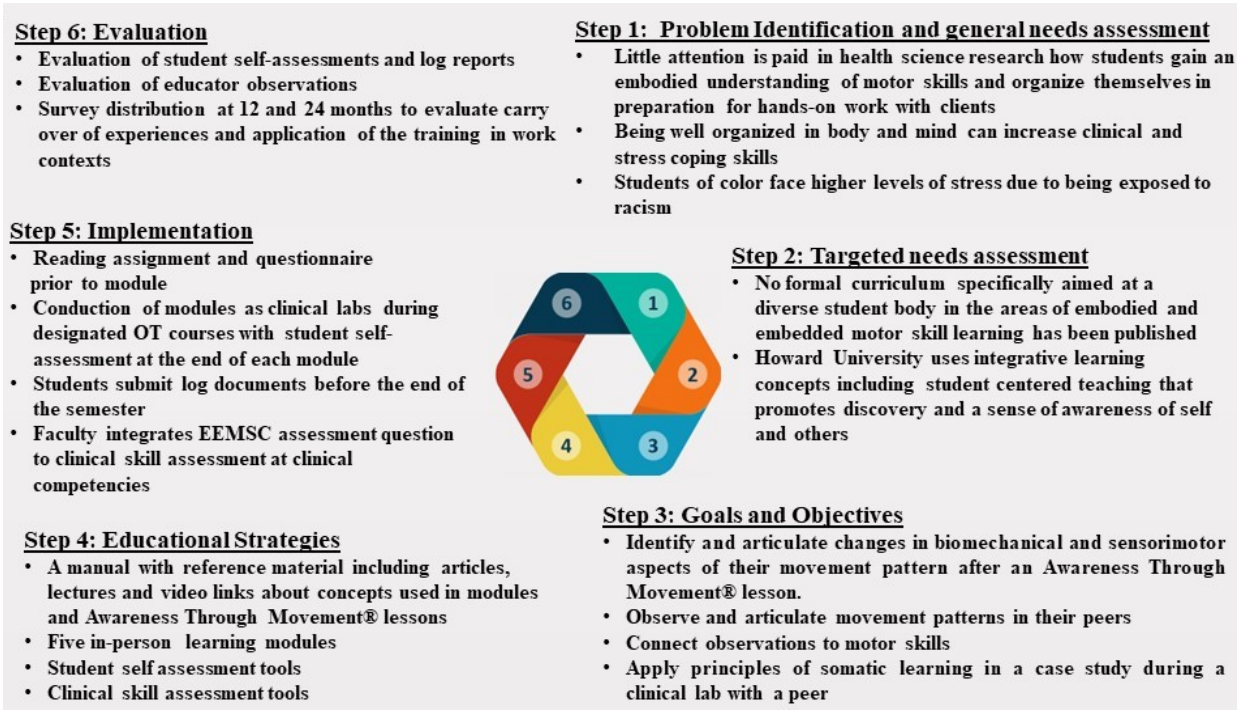

Figure 1. The development of the Embodied and Embedded Motor Skill Curriculum with the Kern 6 Step approach

2.1 Step 1: Problem Identification and General Needs Assessment

A review of literature in the areas of curriculum design, learning theories, and motor learning and OT revealed that nonlinear, experiential hands-on learning is central for clinical skill building of OTs.

Inseparably, using integrated learning models (Howard University, 2021) and a multicultural ecology of teaching and learning methods (Chaves, 2011) has the added advantage of offering resources for reducing the still-present inequity and bias within learning institutions (Dupree & Boykin, 2021) and within the OT community (Abou-Arab & Mendonca, 2020). It is known that students face physical, cognitive and psychological demands during academic and fieldwork studies and can experience high stress levels (Govender, Mkhabela, Hlongwane, Jali & Jetha, 2015; Grab, Long, Norris, Pilchik & Fisher, 2020). For students and clinicians of color, being exposed to racist and biased behavior in clinical settings are additional stressors on their own physical and emotional health. (Van Ryn et al., 2011). In a recent study, US American OT students rated academics and time constraints as their highest stressors (Poleshuck, Eckhardt, Peck, Salce &Valenti, 2020). In work settings, OTs face stressors that can result in musculoskeletal disorders (Anderson & Oakman, 2015) and the danger of burnout (Isidro, MacDermott, Cohill & Park, 2021). McConville and her team reported in their systematic review a strong validity for mindfulness trainings for health care students in the areas of stress, anxiety and depression management, improvement of mood, self-efficacy and empathy (McConville, McAleer & Hahne, 2017).

To learn about already available concepts in standard textbooks and curricula documents, a keyword search and content analysis were conducted. Keywords used were *motor learning, motor control, movement, clinical education, clinical skills, higher education, awareness, integrative learning, experiential learning, and neuroscience*. Included the search were 1) two standard, required-reading textbooks: *Pedretti's Occupational Therapy*, 8th ed.(Pendleton & Schultz-Krohn, 2018) and *Willard and Spackman's Occupational Therapy* (Schell & Gillen, 2019); 2) *Blueprint for Entry-Level Education* (AOTA, 2010); 3) *Occupational Therapy Curriculum Design Framework* (Giles et. al, 2021); 4) *Occupational Therapy Practice Framework: Domain and Process*, 4th ed. (*OTPF-4*) (AOTA, 2020), and 5) the Howard OT doctoral program's entry-level *OTD Student Handbook* (Howard University, 2021).

This search revealed that motor learning, motor control, movement theories, and neuroscience are integral parts of OT research, clinical reasoning, and practice in standard textbooks and in the practice framework, but are barely listed in curricula-related documents. The search for the keywords "clinical education" and "clinical skills" gave the same paucity of results, compared to a very high word count for "science.". In the presentations of the chosen core documents, OT training and clinical practice are reported as science-driven and evidence-based Concepts of mindfulness in working with clients, self-awareness, body awareness, body-mind work and proprio- and interoception are listed and discussed in

standard textbooks, and the importance of experiential and integrated learning is emphasized in both the curriculum framework and the Howard OTD handbook. This indicates an increasing openness to complementary and/or integrative approaches.

2.2 Step 2: Targeted Needs Assessment

A survey of second-year OT students at HU inquired into their self-perceived needs for acquiring clinical skills. Getting prepared and organized in their motor coordination during a patient encounter scored highest. Asked about needs for more learning in preparation for client encounters, the choices with the highest scores again were learning about their own proprioception in the kinetic chain that is involved in functional daily-living task performance, and how to organize oneself and adjust to unexpected changes.

Table 1. Howard University OT student survey results

Question	Chosen answers with percentage %
My preferred learning style is (chose one answer)	50 visual: when I see it 31.25 kinesthetic sense and touch 18.75 other: visual and kinesthetic 0 auditive
If there was another lab offered, I would like to have covered (possible to choose more than one answer)	24.08 how to get prepared and organized in my motor coordination during a client encounter 20.37 patient handling techniques 20.37 reviewing the kinetic chain that is involved in functional tasks of daily living 16.67 getting trained in different types of touch 16.67 concepts, assessment, and treatment approaches
To feel confident to provide motoric training in client encounters, I feel I need to learn more about (possible to choose more than one answer)	34.38 how to organize myself to adjust to unexpected motoric changes in my client during an intervention 34.38 the kinetic chain that is involved in functional tasks of daily living in my own proprioception 18.75 how to get organized in my own motor control during patient interventions 9.38 how to rely on my own proprioception when I administer proprioceptive, sensory, and motor control assessments 0 I already feel confident and do not feel I need to learn more at this point

Labs integrating Feldenkrais® Awareness Though Movement® lessons have been part of courses in kinesiology and anatomy in other universities. Students repeatedly reported benefits in lab journals and in course evaluations (personal conversation with Richard Sabel, November 19, 2020 and April 4, 2022).

However, there is no formal curriculum specifically aimed at a diverse student body in the areas of embodied and embedded motor skill learning that includes evaluation tools for the effectiveness of the program. The OT program at HU, with its student-centered and active and case-based learning approach, emphasizes “learning by doing” and promotes discovery and awareness of self and others. (Howard University, 2021).

2.3 Step 3: Goals and Objectives

The overall goal of the Embodied and Embedded Motor Skill Curriculum is to enable OT students to enhance their individual learning in the area of clinical motor skills by enabling them to experience, understand, and apply basic somatic learning principles for functional task performance in a meaningful context—in short, learning by sensing, reflecting, and doing. This sets a fundamental exploratory learning process in motion. The components of this learning process are awareness, curiosity, inquiry, discovery, and shifting from fixing or correcting to enabling learning: “Learning how to learn” (Feldenkrais, 1984). This learning is always embedded in a meaningful daily task performance in a specific

environment, encompassing self-care and care for others, health management, work, formal and informal learning, play and leisure, rest/sleep, and social participation. The domains of the EEMSC curriculum are therefore self-organization in movement, self-efficacy, and embedding these in context and function. The EEMSC aims to enhance, not replace, current validated goals and contribute to skill shaping: when you know what you are doing, you will be better able to do what you want and intend to do. The Accreditation Council for OT Education (ACOTE, 2023) standards for safety for self and others (B 3.7) and the application of science-based models in intervention practice (B 2.1) were incorporated as well as core competencies for learning and clinical practice from curricula documents by the AOTA and HU. During group work and instructor demonstrations in the EEMSC, contexts will be addressed and included in clinical reasoning. The ACOTE standards address context in various places, including in Interaction of Occupation and Activity (B.3.2.) and Context of Service delivery (B 5.0).

The objectives for the curriculum have been developed based on these domains. The desired achievements are in all three areas of cognition, affect, and psychomotor. Given the focus of the curriculum on embodiment, the emphasis has been placed on psychomotor objectives.

At the completion of this curriculum, students will be able to

(1) Identify and articulate changes in biomechanical and sensorimotor aspects of their own movement pattern after an Awareness Through Movement® lesson.

(2) Observe and articulate movement patterns in their peers.

(3) Connect observations to motor skills.

(4) Apply principles of somatic learning in a case study during a clinical lab with a peer.

2.4. Step 4: Educational Strategies

The Embodied and Embedded Motor Skill Curriculum consists of five educational components. The experiential training modules include selected Awareness Through Movement® (ATM®) lessons connected to motor performance skills that are relevant for clinical practice—such as positioning, reaching, grasping, aligning, bending, coordinating, and pacing—and shaped to meet students' needs in their kinesthetic and coordination skills. They are provided by a certified ATM® instructor who is present in the lab room, who can provide both verbal and hands-on guidance and answer questions. The preference for in-person versus online modules is grounded in the content of the curriculum to improve hands-on skills based on each individual's sensed somatic experiences. However, accommodating current needs and providing the modules partly online is under consideration.

A manual provides a resource to students for their knowledge and hands-on tool box beyond their academic training. It is known that experiential learning has a long-term effect on students' success (Bradberry & De Maio, 2019). Oral accounts of students show that experiences from their OT training might be retrieved as meaningful in a new context even years after their formal training.

Student logs and self-assessment tools offer students the opportunity to reflect on their experiences and to train their competencies in verbal expression of self-observation, as well as observation of peers/simulated clients.

A clinical observation assessment tool can be easily integrated into clinical lab practice to assess student progress in learning and to be used for feedback for the student.

In-person instruction is still the preferred lab practice to prepare students for hands-on clinical encounters with clients in fieldwork and future work settings. In addition, accommodations are being developed due to the recent COVID-19 pandemic.

Educational methods for the EEMSC are self-experience, supervised peer learning, supervised peer teaching, reflection on experiences, observation, role modeling, demonstration, reading, simulation, group discussions, lectures, task-oriented and problem-based learning, and reviewing.

Table 2. Components of the Embodied and Embedded Motor Skill Curriculum (EEMSC)

# Of items	Type	Content
1	Manual with reference material	Lecture summaries, reference articles and audio-visual links; Awareness Through Movement® lesson summaries
2	Module script	Four in-person learning modules as supplements for academic course syllabi of first and second-year students
3	Assignment template	Assignments/observation logs for OT students
4	Assessment/survey forms	Student self-assessment
5	Clinical skill assessment tool	A clinical skill assessment that can be integrated in clinical observation during labs (sim-labs or in person)

2.5 Step 5: Implementation

The EEMSC was originally developed as a pilot curriculum for the entry-level doctoral OT students at the historically Black HU. It offers modules with hands-on labs for several semesters of their education, adhering to a developmental model. The modules are not lock-step. It is also possible to pair a given module with another course. The domains of self-organization in movement, self-efficacy, and embedding these in context and function are relevant and applicable in every OT course.

Table 3. EEMSC Module format (planned for 120 min, usual clinical lab time frame)

- Introduction, functional task topic of the module (example ADL including transfers, bed mobility, dressing) (10 min) and Awareness Through Movement® lesson (30 min)
- Students: documentation of self-observations with guiding questions in log (10 min)
- Group discussion: connecting components of the lesson to motor skills (OTPF) (15 min)
- Translation of Feldenkrais®/body-mind learning principles and motor skills for the functional task of the module: demonstration and group work (20 min)
- Group practice in groups of three (25min)
- Completion of self-assessment survey (10 min)

Students and educators will have access to the manual with the reference material prior to an EEMS lab. At the beginning of each module, students will complete a short questionnaire with basic knowledge questions about the content of the reference material and their perceived self-organization and self-efficacy. After that, they will perform movement sequences in a verbally guided Awareness Through Movement® lesson. Then they document observations of biomechanical and sensorimotor aspects of their movements in a log. In a peer lab, they will connect components from the movement lesson that were meaningful for themselves with motor skills and functional tasks as listed in the OT Practice Framework (AOTA, 2020). Students will practice in small groups with the opportunity for hands-on and verbal guidance by the instructor. At the end of each lab module, students will be asked to complete a short self-assessment survey. As a homework assignment, the students will be asked to choose two motor skills and observe the movement patterns and habits of a peer and, if available, during patient encounters in fieldwork hours. Students will document their motor skill choice and their observations in their logs and submit their documentation before the end of the semester as an assignment on the course online platform. Experiential learning in the entry-level OTD program includes several clinical labs in students receive feedback from standardized simulated patients and/or the OT faculty. The clinical observation assessment tool can be integrated in the faculty feedback.

2.6 Step 6: Evaluation and Feedback

This step is essential not only to determine whether the goals and objectives have been met, but also to re-assess and refine the EEMSC. As the steps in the Kern framework are interrelated, the evaluation allows continual development of the curriculum. The EEMSC is primarily student-centered. The most relevant evaluation tools will be the students' self-assessment survey after each lab, their log reports at the end of the semester, and their skill self-assessment at the end of each semester. The educator qualitative clinical observation form with observation scores offers feedback from the faculty, while student self-assessment includes the questions from the educator clinical observation form but is answered from the perspective of the students. With these data about goal and objective achievements, the EEMSC can reassessed and further refined.

As any learning is understood as a long-term change in mental representations or associations as a result of experience (Ormrod, 2008), somatic learning is also likely to occur as a result of an experience. Change can occur within minutes (example: "Imagine you have eyes on the back of your head – how would you walk around → what changes in your posture do you notice?") or over weeks to years (example: a student's report of having learned to discriminate distribution of forces while turning and practiced rotating in a new way, without putting shearing forces on the lower back). Longitudinal data will support the evidence of the EEMSC. Therefore, additional surveys are planned to be distributed to the students 12 and 24 months after completion of the HU OT program to evaluate carry-over of learning and application of the training in work contexts and in the self-organization and self-efficacy of the participants.

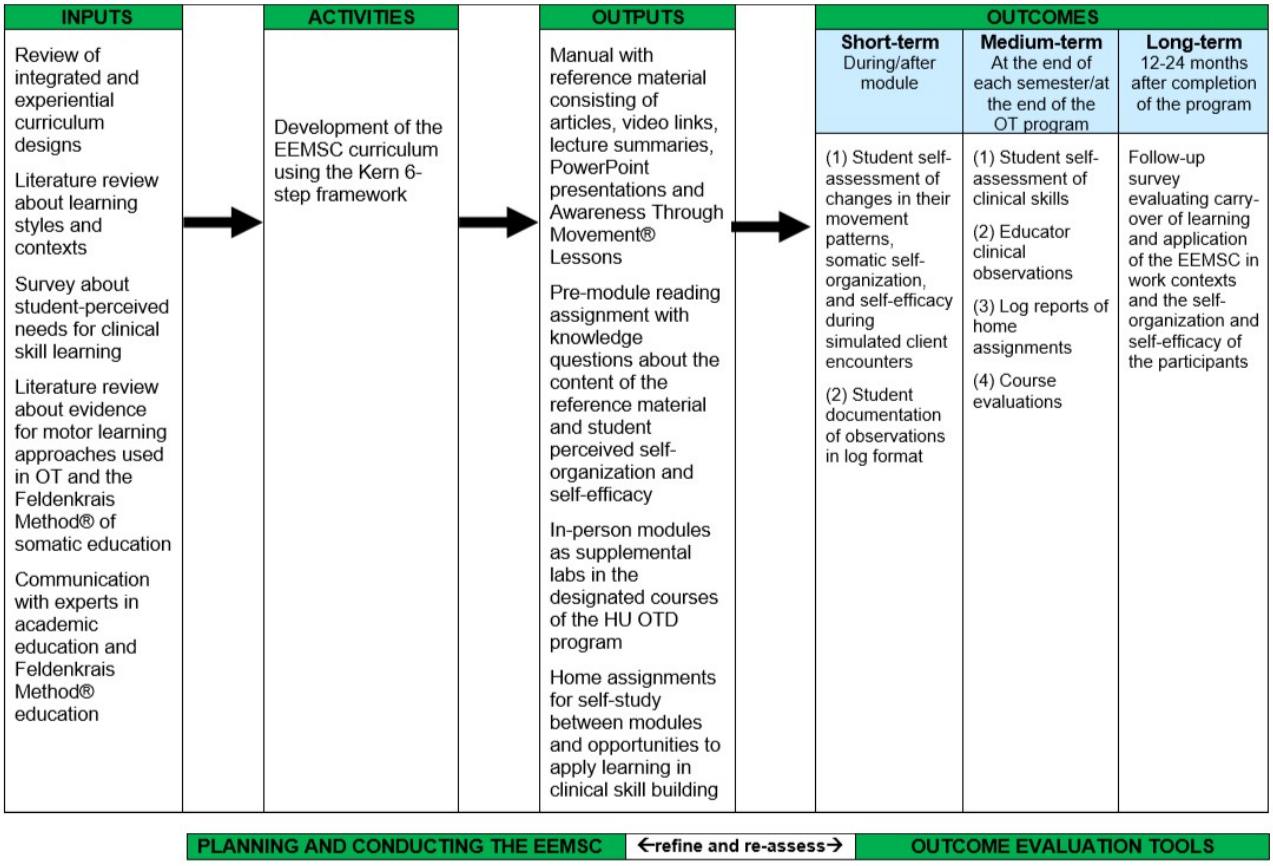

Figure 2. Logic chart for EEMSC evaluation process

3. Discussion

The development of the EEMSC has shown how well OT clinical practice and embodied learning approaches can go together. Both embrace a holistic view of the client/student, and both emphasize a client-centered approach. They both include the therapeutic use of self: In OT in the therapeutic interaction between the therapist and the client; in Feldenkrais® in the concept of two nervous systems talking to each other in the interaction between practitioner and student. Members of both professions are clearly hands-on, life skill and function based, and increase their professionality when they have more than one solution to a question or problem. Both disciplines operate from a science background, and are interested in knowledge translation and research. The training of OTs is both academic and experiential. The Person-Environment-Occupation Model strives for social justice, as does the core value in Feldenkrais® practice to restore each person to their human dignity. The EEMSC may offer opportunities for enriching kinesthetic training, self-awareness, and self-efficacy of diverse OT students in preparation for patient encounters.

The limitation of program development designs is always the need to be implemented before further results can be reported. The dosage of the modules in a course may be another limitation. Every kind of learning, including embodied learning needs time for acquisition, retention, and generalization. Student self-assessment, including longitudinal follow-ups, will reveal whether the current dosage of the modules shows the desired outcomes.

4. Conclusions

The idea for this project started with clinical observations of OT students during hands-on labs with peers or sim lab clients. Some students, despite their motivation and theoretical knowledge about providing client-centered and Person-Environment-Occupation based interventions, had difficulty applying their academic knowledge about motor skills in hands-on practice. A need to improve self-organization and self-efficacy was identified. An in-depth review of research, curriculum, and practice frameworks and standard textbooks confirmed that skillful movement, coordination, and therefore motor skill training are an important part of contemporary OT services and that students need experiential learning opportunities. Learning by doing and kinesthetic and visual learning styles were preferred by the majority Black and female HU OT student population. The author was interested in integrating embodied learning with the Feldenkrais Method® as an enrichment into academic OT training to contribute to meeting the perceived needs of the students, and embedding this in the contexts of HU OT students and their prospective clients. Outcome data to support the effectiveness of this curriculum will be collected once the implementation and evaluation of the curriculum cycle is completed.

It is envisioned that the EEMSC will offer feasible experiential learning options for self-organization and self-efficacy of OT students. It is also envisioned that applying somatic learning in clinical interventions with underserved populations will be empowering and enabling both for therapists and their clients to participate in life through engagement in occupation and to perform their meaningful daily tasks with skill and pleasure.

The current concept is a pilot program for HU. It is hoped the EEMSC will prove to be a useful tool to be implemented at other universities in the US and internationally. It is envisioned that it will promote collaboration between OTs and qualified somatic educators and inspire further projects between academia and integrative and culturally diverse health and wellness approaches.

Disclaimer

The author is a licensed and actively practicing Occupational Therapist, a clinical instructor and part time assistant professor at HU, and a Guild Certified Feldenkrais® Practitioner (GCFP). The EEMSC was developed as part of an OTD degree. The author declares no conflict of interest or financial funding for this project.

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