January 2018

Metacognition and MoHO collide: Creating effective tutor and mentoring programs for college students on academic probation

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METACOGNITION AND MOHO COLLIDE: CREATING EFFECTIVE TUTOR AND MENTORING PROGRAMS FOR COLLEGE STUDENTS ON ACADEMIC PROBATION

BY

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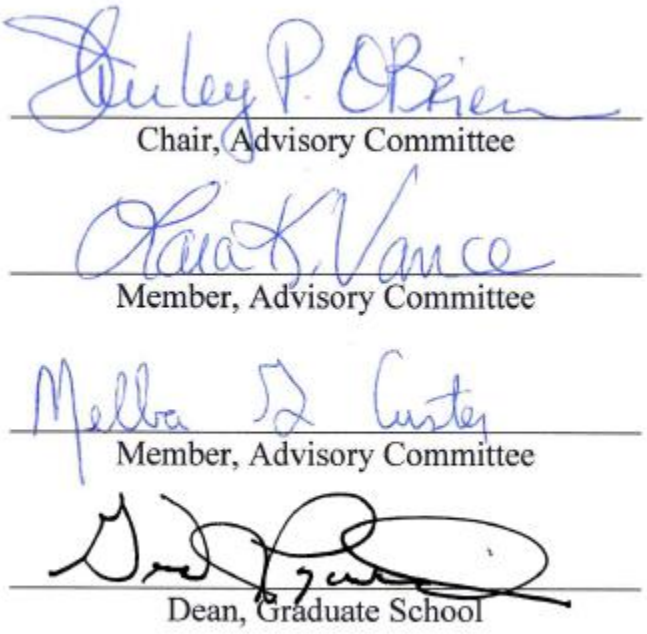

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BY

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Bachelor of Science
Eastern Kentucky University
Richmond, Kentucky
2016

Submitted to the Faculty of the Graduate School of
Eastern Kentucky University
in partial fulfillment of the requirements
for the degree of
MASTER OF SCIENCE
August, 2018

Dedication

To the faculty of the Department of Occupational Therapy at Eastern Kentucky University, for opening my heart to limitless opportunity.

"Let the beauty we love be what we do.
There are hundreds of ways to kneel and kiss the ground."
–Jalal ad-Din Muhammad Rumi

Acknowledgements

Thank you to my advisory committee chair, Dr. Shirley O'Brien, OTR/L, FAOTA, for inspiring me to embrace passion. With her graceful guidance illuminating my path, I have learned not only to see possibility, but to grasp it with confidence. Thank you to my advisory committee member Melba Custer, OTR/L for providing me with guidance in both research and attitude, enabling me to face new challenges without fear. Thank you to my advisory committee member Dr. Lara Vance, Ed.D for showing me a tender heart is a component of strength, and that pouring love into what you do is how to effect real change in the lives of others; your passion for higher education is the fuel of my persistence throughout this process.

Thank you to my father and mother, Jim and Sharon Vick, for unconditional love, support, and patience during this process, and during all of my school years; your consistent faith in me as a hard working individual has provided me with direction and drive, and without you an opportunity like this never would have come along. Thank you to my dear friend Nicole Foright, for permitting me to be my true self, to open my eyes and see limitless combinations of colors, and to keep my larger vision at the forefront of the graduate school and thesis process. Thank you to my dear friend Ashley Thorburn, who has been by my side through the ebb and flow of graduate school, and who aligned with me to dedicate love to the present moment. Finally, thank you to all of the staff at the EKU Student Success Center for their support and participation in this process; without them the creation of this thesis would not have been possible.

Abstract

Current legislation offers K-12 students identified as having special needs support in school settings, resulting in increased opportunities including attending college. In college, these students become part of a population of high-risk students. In an effort to retain students, universities create assistive learning centers offering tutoring and mentoring programs. Best practices in these centers include implementation of metacognitive strategies which are proven to improve student outcomes, but not all students utilize them. This study implemented a tutor and mentor training program developed through Occupational Therapy consultation in a university assistive learning center. Tutors and mentors in the center were trained in the Model of Human Occupation (MoHO) theory and metacognitive strategies. An assessment derived from theoretical underpinnings of MoHO was completed by students and facilitated by tutors and mentors exploring self-perception of motivation, habituation and performance in academic-related occupations. Pre- and post-assessment data, grade point average, and demographic data were collected and analyzed. Tutors and mentors guided students in metacognitive processes, fostering self-reflection and addressing motivational aspects behind academic success. By systematically learning about the student as a complex individual through the theoretical lens of MoHO and using metacognitive learning strategies, tutors and mentors understand students better and enable students to better understand themselves, not only as students, but as holistic individuals. Findings of the study suggest modest changes in ways to address high-risk student needs for success. Implications for the role of the occupational therapist in assistive learning centers is suggested.

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CHAPTER 1

INTRODUCTION

Background and Need

With the creation of legislation promoting equal educational opportunities for all students in public K-12 education, an increasingly diverse body of students are showing up at the doorstep of many two- and four-year colleges and universities (Mudge & Higgins, 2011). The ongoing desire of students with disabilities to pursue post-secondary education is praised. Many of the students, however, that have received specially designed instructional supports as a result of various public laws such as IDEA-04, Every Student Succeeds Act of 2015 and Section 504 of the Rehabilitation Act of 1973, as amended, cover learning needs only in the K-12 system. Students of varied racial, ethnic, and socioeconomic backgrounds as well as students with physical or mental disabilities receive the assistance needed throughout their primary and secondary education as a result of to this legislation (IDEA, 2004; ESSA, 2015; Rehabilitation Act of 1973). As a result, special populations of students now have legitimate opportunities to participate in post-secondary education within a university setting. An issue arises once these students get on campus; no legislation mandates continued services, and institutions are left to their own devices in addressing student success for this population. Adjustment to university-type learning is difficult for all students, especially those who have utilized supports at the high school level. Poor academic performance at the university level is often the result of students belonging to special populations not using assistive services. Universities have begun to respond to this challenge through the development of assistive learning centers and the implementation of tutoring and mentoring programs. The focus

of these centers is to provide academic learning supports, however, for individuals with disabilities, their occupational needs may be greater.

Literature suggests that assistive learning centers and programming for targeted populations have improved student outcomes (Arco-Tirado, Fernández-Martín, & Fernández-Balboa, 2011; Cornelius, Wood & Lai, 2016; Dappen & Isernhagen, 2005; Gardner, Murly, & Chalik, 2012; Gutman et al., 2007; Laskey & Hetzel, 2011; Schindler & Cajiga, 2015; Tinto, 2012; Walvoord & Pleitz, 2016). The literature lacks an exploration of what the most effective tutoring and mentoring strategies are when engaging with students in need of assistance. Best practices in tutoring and mentoring programs in the university setting must be defined. Student outcomes measured should not be limited to performance in the classroom; well-being and life satisfaction are components of the student experience which directly affect academic performance.

Significance of Study

This study presents a new approach to existing tutoring and mentoring practices which could improve student academic performance and ultimately increase university retention rates of high-risk populations. The role of Occupational Therapy (OT) in a higher education setting has been explored in a limited fashion. This study serves to illuminate the potential for OT to intervene with students at the post-secondary educational level. Occupational therapists can help individuals reach occupational goals, including students pursuing success in academic endeavors as well. As consultants to higher education learning centers, occupational therapists apply knowledge about occupational performance and adaptations, fostering occupational identity and occupational competence in the young adult population. OT knowledge and theory

implemented at the university level could have a positive influence over student success outcomes in higher education.

Tutor and mentor training is often focused solely on enabling tutors and mentors to meet curriculum-based needs of students. Best practices include use of metacognitive learning strategies. *Metacognition* is a term encompassing multiple concepts (Driessen, 2014) but is broadly defined as "thoughts about one's own thoughts and cognitions" (Dunlosky and Metcalfe, 2009, p. vii). Strategies defined by Brown, Roedinger, and McDaniel (2014) emphasize a shift from traditional "massed practice" learning strategies to methods that help students commit information to long-term memory. Research supports that integrating metacognitive practices into higher education settings improves student outcomes (Cook, Kennedy, & Mcguire, 2013; Zhao, Wardeska, McGuire, & Cook, 2014; McGuire & McGuire, 2015). Still, educators in colleges and universities seek to develop other assistive learning supports to improve outcomes and retain more high-risk students.

This study serves to innovate new programming, utilizing metacognitive strategies in combination with OT theory. A tutor and mentor training program was developed, based on OT theory, specifically the Model of Human Occupation (MoHO) (Kielhofner, 2008), which provides a framework through which educators approach tutor and mentor training. MoHO provides a method of understanding that traditional tutor and mentor services do not. The application of the key elements of this theory to student success training takes the guesswork out of understanding the students referred for supports and how to motivate them. MoHO theory addresses motivation, habits and routines, along with occupational performance components (cognitive and physical skills)

and the environment where the student engages in learning. All of these components are integrated to help build one's occupational identity and occupational competence (Kielhofner, 2008). When tutors and mentors are able to assist students in addressing their own motivations, and meaning is added to their student role and the associated expected role behaviors for success in the university setting, they do so using metacognitive strategies. Thus, student confidence in the learning process is reinforced, along with building competence for ongoing learning.

Adding MoHO concepts into the educational training of tutors and mentors enhances existing programming at the university level in student success centers. The training is practical, and will equip tutors and mentors with the skills necessary to lead effective sessions where the student participates in a self-reflective learning process. This self-reflective process actually engages a student in metacognitive learning strategies, leading the student to identify how their various roles, values, interests, and motivations can influence occupational performance, specifically academically. Occupational Therapy theory brings a new perspective into the world of higher education and assistive learning center practices. By using metacognition to systematically learn about the student as a complex individual through the lens of MoHO, tutors and mentors can better serve the needs of that unique student.

Objectives

- Define a role for Occupational Therapy in a post-secondary educational environment.
- Present a different approach to training programs which encourages individualized and student-centered tutoring and mentoring.

- Expose a connection between Metacognition and the Model of Human Occupation through the construction of student-centered tutoring and mentoring programs.
- Report any change seen in grade point average and/or academic standing of the students participating in tutoring or mentoring programming.
- Provide practical strategies for tutors and mentors to use when working with a student.
- Provide a program evaluation of Eastern Kentucky University's tutoring and mentoring programs before and after training tutors and mentors with MoHO and metacognitive strategies through use of a Student Success Self-Assessment.

Scope and Limitation

The population of focus in this study is students on academic probation (earning less than a 2.0 GPA in the previous semester) who sign success agreements (Appendix B) during the Spring semester of 2017 at Eastern Kentucky University.

One limitation of this study is the small sample size. The sample only includes those students who decide to actively participate in tutoring and mentoring programs. The selection of students who have been placed on academic probation often lack motivation to follow through with the goals they selected on their Success Agreements, resulting in a smaller number of students who completed both a pre- and post-assessment. As a result of this issue, the sample size decreased significantly from the beginning of the semester to the end.

Definition of Terms

- IDEA-04: Individuals with Disabilities Education Act; Federal law ensuring students with disabilities are provided with education tailored to their needs.
- Occupational Therapy: Using meaningful daily activities in therapy to develop, restore, or sustain independence in daily function, while bring meaning and purpose to an individual's life.
- Occupation: Everyday activities that people do which give their lives meaning and purpose.
- Model of Human Occupation: Occupational Therapy conceptual practice model which defines the person as a dynamical open system interacting with and adapting to the environment, taking into account the motivation, pattern, and performance of occupation.
- Volition: Guides an individual's choice of action, that is, what motivates them. Composed of a person's values, interests, and personal causation
- Habituation: The occupational patterns an individual develops in daily life, including habits, routines, and roles.
- Performance Capacity: An individual's skills for producing an action. Composed of motor skills, processing skills, and communication skills.
- Environment: external influences over occupation; including social and physical factors which can direct or steer occupational choice.
- Occupational Profile: A summary of an individual's occupational participation, including occupational motivation, patterns, and performance.

- Occupational Identity: meaningful occupational participation creates our identity; we are what we do.
- Metacognition: awareness and understanding of the process of how oneself thinks and learns.

REVIEW OF LITERATURE

Theoretical Framework

Metacognition

In their textbook *Metacognition*, Dunlosky and Metcalfe (2009) define *metacognition* as "thoughts about one's own thoughts and cognitions" (pg. vii). *Metacognition* is a broad term encompassing multiple concepts and outlining the psychology behind learning (Driessen, 2014). According to McGuire (2015), a leading researcher of the topic, "metacognition is the ability to think about one's thoughts, be consciously aware of oneself as a problem solver, monitor, plan, and control one's mental processing, and accurately judge one's level of learning" (pg. 4), and learning how to use this information in academics can boost performance. In their book *Make it Stick: The Science of Successful Learning*, Brown, Roediger, and McDaniel (2014) debunk traditional "massed practice" learning strategies, suggesting that there are more efficient ways to learn. They outline eight learning techniques rooted in metacognitive theory, including retrieval, spaced and interleaved practice strategies, elaboration, generation, reflection, calibration, and mnemonic devices, which are used frequently in university tutoring and mentoring programs. These strategies not only enhance learning but foster self-regulatory behavior in students (Nash-Ditzel, 2010) and improve student outcomes, resulting in metacognition being considered best practice for student success programming (Cook, Kennedy, & Mcguire, 2013; Zhao, Wardeska, McGuire, & Cook, 2014; McGuire & McGuire, 2015).

Model of Human Occupation

Kielhofner's Model of Human Occupation (MoHO) (2008) provides a framework through which occupational therapists approach interventions, guiding the therapist to discover an individual's motivation behind occupation, the habits used to participate in occupation, and the capacity for occupational performance. MoHO also takes into consideration the influence the environment has over occupation. Motivation includes personal causation, values, and interests; these are the client factors which steer occupational choice and influence occupational participation. Motivation behind occupation leads to the habituation of it, which includes everyday habits, routines, roles, and rituals. Examples of habits of typical college students include setting a daily schedule, attending classes, eating regularly, practicing daily hygiene, completing homework, and engaging in social occupations. Performance capacity refers to what an individual is capable of doing and how one perceives one's abilities. All three combine to produce participation, which is defined as what an individual is actually doing, including performance and skill. All of this interacts with the outside influence of the environment, which affords opportunities for or restrictions of participation for every individual in a unique manner (Kielhofner, 2008).

The Connection between Occupational Therapy and Pedagogical Theory

Defining how metacognitive strategies are used in tutoring sessions to address both academic and non-academic performance issues can illustrate the ease of integration of MoHO with metacognitive learning strategies. The metacognitive learning strategies that Brown, Roediger, and McDainel have outlined in *Make it Stick* (2014) that are used in this study are elaboration, generation, reflection, and calibration. Elaborating is

identifying meaningful connections to the information being learned, whether it's recalling a recent study that relates or linking the information to an out-of-class experience. In tutoring, elaboration is facilitated by the tutor during academic learning, but in this study, it is also seen when the student is asked to make meaningful connections to their academic success; the student elaborates by finding another layer of meaning behind schoolwork. Generation involves attempting problem solving before knowing what the solution is. Tutors can encourage this by asking the student to attempt answering a difficult question before providing them with the answer. In this study generation is also encouraged when the student and tutor discuss potential solutions for performance areas of concern in academic occupations. Reflection is encouraged when a tutor asks a student to pause and review the material they have learned so far, thinking about what questions they have or what they understand well. MoHO guides reflection when the tutor asks the student to think about what other life factors are influencing academic occupations. Students will gain skills in reflective thinking, a beneficial skill in academic or nonacademic endeavors. And lastly, tutors use calibration by using quizzes or tests to eradicate illusions regarding performance in a particular academic area, obtaining a realistic baseline to work from. In this study calibration will also be used by tutors and mentors in the administration a paper self-assessment. This guides students to take a look at the areas of academic occupations outside of strictly comprehension of material to obtain a realistic view of what else, besides a lack of knowledge, might be causing a low grade point average.

The Origin of the High-Risk College Student

Legislation promoting equal and inclusive education for all has led to universities accepting a wider scope of students from diverse backgrounds. A population of students from homes of low socioeconomic status, diverse races and cultures, first generation college students, and students with physical, mental, or learning disabilities are accepted into universities to pursue their degrees (Mudge & Higgins, 2011). While in the K-12 system, these special populations may have been eligible for specially designed learning services as a part of various federal statutes. Universities are concerned with the retention of these students, and as a result, they are often referred to as high-risk for dropping or failing out of college.

College-going individuals who are considered to be high-risk each have a unique set of barriers inhibiting success in college. Students managing disabilities are given services in high school that do not continue in post-secondary education, and they will need to continue to develop basic skills that are necessary to succeed in a college environment (Becker et al., 2002). First generation students are considered high-risk because they face challenges in adapting to college life that typical students do not encounter and are less likely to be retained as a result (McMurray & Sorrells, 2009; Van T. Bui, 2002). Several studies reveal that members of racial minorities, like African Americans and Hispanic groups, are also at a higher risk for failure in higher education settings (Roderick, Nagaoka, & Coca, 2009; Strayhorn, 2014). These factors include a lack of aspiration to succeed in college (Strayhorn, 2009), a lack of emotional and financial support from family (Guiffrida, 2005), and difficulty adjusting to the changes in cultural context when moving away from home (Cerezo & McWhirter, 2012). An overlap

exists between under-represented minority groups and low-income students, who face a similar set of challenges brought from attending low-income high schools, resulting in lower scores on standardized tests (Engle & O'Brien, 2007). All of these populations together can be considered high-risk. With the high-risk student population, the reasons for academic failure in college are so diverse, influenced by a plethora of factors, that there is a need for a continuation, and individualization, of supportive services in the post-secondary learning environment.

Legislation in Secondary Education

The Individuals with Disabilities Education Act (IDEA) of 2004 provides an opportunity for students with disabilities to receive free public education from ages three to 17 (Davies, Trunk, & Kramer, 2014). The law states:

> Disability is a natural part of the human experience and in no way diminishes the right of individuals to participate in or contribute to society. Improving educational results for children with disabilities is an essential element of our national policy of ensuring equality of opportunity, full participation, independent living, and economic self-sufficiency for individuals with disabilities. (IDEA, 2004)

IDEA allows an individual with a disability to benefit from an Individualized Education Program (IEP), which serves to define what special services that student will receive; it is noted that occupational therapy services can be a part of a child's IEP plan (Davies, Trunk, & Kramer, 2014). Providing free and appropriate public education (FAPE) is not a requirement by law in public or private higher-education schools (Davies, Trunk, & Kramer, 2014), and thus, the mandatory educational supports created by IDEA do not

continue as the student advances beyond high school. While IDEA has enabled students with disabilities to continue education in a post-secondary environment through supporting them in high school, IEPs do not continue in higher education settings, increasing the risk for failure and adding students with disabilities into the high-risk category.

Section 504 of the Rehabilitation Act of 1973 protects the right that individuals with disabilities have to federal funding or grants that can be administered through a public university (Rehabilitation Act of 1973), ensuring that students with physical, mental, and learning disabilities will receive the same accommodations in college that they did in high school. As a result, the number of students with disabilities enrolled at a university has increased.

The Every Student Succeeds Act of 2015 (ESSA) is a reauthorization of the Elementary and Secondary Education Act of 1965 (ESEA), and a replacement of the No Child Left Behind Act of 2002 (NCLB). ESSA was in response to an increase in high school graduation rates and more students hoping to attend college. This act protects disadvantaged students and sets new higher standards for education in an attempt to prep students for post-secondary education (ESSA, 2015). ESSA "represents the nation's commitment to equal education opportunity for all students, regardless of race, ethnicity, disability, English proficiency, or income" (Darrow, 2016, pg. 41). ESSA also requires schools to offer career counseling, college prep, and advanced coursework to all students, not just those who live in high-income areas. ESSA's supports for students stop after the twelfth grade, and the students who need continuation of support are left with a higher risk for failure (Darrow, 2016).

The needs of these students when they are in transition from K-12 to post-secondary education have not been addressed with great understanding by secondary or post-secondary educational settings. The support provided in high schools, even with transition planning, still allow students to fall through the cracks. This issue can be illustrated in a 2014 report from the National Center for Learning Disabilities, which found that 94% of high school students with disabilities utilize services, but only 17% of students with disabilities take advantages of available services in college (Cortiella & Horowitz, 2014).

Students with special needs arrive at universities, eagerly anticipating a familiar and supportive learning environment, only to be faced with many more options in their new environment. They may possess habits and routines, but new challenges in learning to live on their own, much like other college freshman, present obstacles for true independence. A need exists not only for a focus on academic success as an outcome, but also on the individual components needed for achievement.

Current Higher Education Assistive Learning Services

Universities like Eastern Kentucky have begun to respond to challenges presented by the acceptance of underprepared students and students with disabilities. Assistive learning centers offer services like tutoring and mentoring and intentional outreach to high-risk students is often completed (The current nature and scope of learning assistance, 2010) with the intention of providing students with the supports they need to be successful in the higher education environment.

The available literature reviews the effectiveness of such programs and shows their benefit and positive results. Tutoring programs provide students support with course

material while mentoring programs offer students guidance when navigating their new environments, and there is a strong base of evidence verifying the benefits (Arco-Tirado, Fernández-Martín, & Fernández-Balboa, 2011; Cornelius, Wood & Lai, 2016; Dappen & Isernhagen, 2005; Gardner, Murly, & Chalik, 2012; Gutman et al., 2007; Laskey & Hetzel, 2011; Schindler & Cajiga, 2015; Tinto, 2012; Walvoord & Pleitz, 2016). Tutoring and mentoring help students raise grade-point-averages, and universities can increase retention rates as a result (Laskey & Hetzel, 2011; Tinto, 2012).

What the literature lacks, however, is exploration of how to continue improving outcomes. If universities are concerned with increasing retention rates by assisting high-risk students, a drive should be present to identify best practices in tutoring and mentoring to better assist students in managing their complex and unique sets of challenges. In order to understand and meet the needs of the student, assistive learning services should search for new perspectives on tutoring and mentoring programs, because "innovative programming is needed to bridge that gap between intended results and reality" (Gardner, Mulry, & Chalik, 2012, pg. 259).

Assistive Learning Services at Eastern Kentucky University

At Eastern Kentucky University (EKU), the multidisciplinary tutoring center on campus is the Student Success Center (SSC), employing 30 student tutors/mentors who collectively assist with most courses offered at EKU. The SSC offers a variety of services to students, including tutoring, mentoring, workshops, advising, and general information (Eastern Kentucky University Tutoring Services, 2015). Intentional outreach is conducted by the SSC to groups of high-risk student populations, like first generation freshman. Additionally, students can be referred to the SSC by professors, Residence Hall staff, or

other university staff members. Fourth week progress reports and midterm grades are monitored and outreach is targeted to students who do not have satisfactory reports or passing grades. Students who earn a 2.0 grade point average (GPA) or lower during one semester are placed on academic probation for the next. If their GPA is not raised to above a 2.0 during the semester of academic probation, that student is at risk for remaining on academic probation, or be placed on academic suspension status. The SSC is the main supportive service to help raise GPA and retain this collection of high-risk students.

Role of OT in Higher Education

Occupational Therapists (OTs) serve an increasingly broad range of populations. According to the American Occupational Therapy Association (AOTA), occupational therapists "help people across the lifespan participate in the things they want and need to do through the therapeutic use of everyday activities (occupations)" (AOTA, 2017). College students and their occupations are certainly included within this scope of practice. In an educational setting, OTs are most commonly found in K-12 schools (Jackson, 2007), excluding post-secondary learning environments.

In addition to K-12 schools, OT as a consulting discipline can and should intervene in a higher education setting. OT can help meet students' occupational needs and create opportunities for their academic success. Limited literature exists exploring the connection between the two realms, but because of the broad scope of practice and mission of OT services to assist with all occupations across the lifespan, the college student can benefit from OT services, making higher education an appropriate setting for occupational therapy intervention. OT can identify the needs of college students through

"activity analysis to break down cognitive and psychosocial tasks into their component parts to ensure that skill demands match a client's level" (Gutman et al., 2007, pg. 23). Traditional tutor and mentor training does not provide this line of thinking. Thus, more research is needed to establish and strengthen this relationship.

Within the higher education setting, occupational therapists can help enhance current assistive learning services for college students. Schindler & Cajiga (2015) presented such a role for OTs in a higher education setting when they explored the transition from high school to college for students with Asperger's Disorder (AD). An OT mentoring program was implemented; second year OT master's students were paired with 11 students with AD, meeting once or twice weekly for two hours, and under the supervision of OT faculty. OT students performed clinical assessments to identify strengths and weaknesses, collaboratively set goals, and develop intervention plans targeting the goals. The Canadian Occupational Performance Measure (COPM), used as an initial assessment and again as a reevaluation post-intervention, and retention rates were both used as quantifiable evidence, and at the end of the OT mentoring program, nine of the 11 students were retained at the university. Results of the COPM pre- and post-assessment showed improvement in both occupational performance and satisfaction. The population who will benefit from OT consult in assistive learning centers is not limited to college students with AD, but includes all groups of high-risk students. This research attempts to explore the breadth of effectiveness of OT services for all high-risk students who need learning supports in college.

Tutor/Mentor-Student Relationship

The relationships between the tutor/mentor and student is essential to a student's success (Malik, 2000; Smith, 2011). Each student brings a different challenge, and it is the job of the tutor and/or mentor to discover what areas of academia are difficult for the student. In addition to coursework, tutors and mentors can assist in finding out what the root cause of the problem may be and often times the real cause of failing grades is not solely poor comprehension of course content. Other areas of a student's performance which may be contributing to poor grades include time management skills, stress management abilities, financial aid issues, or mental health concerns; all are factors which effect a student's ability to learn and to perform well academically (Fernández-Martín, & Fernández-Balboa, 2011). Establishing a healthy, open and trusting student-tutor relationship is essential to the success of the student, so that the soft skills a student needs to thrive can be identified and developed.

When considering all that entails being a tutor and mentor, a comparison between the tutor/mentor-student relationship and client-therapist relationship can be drawn. The tutor/mentor acts as a therapist by gaining a holistic understanding of a student's situation and building an "intervention plan" directed to address the problem areas in academic performance. Tutors and mentors can perform some functions of OTs through providing students with the tools they will need to foster academic success at the post-secondary educational level. This is possible because the role of the OT is not only rehabilitative, but also habilitative in nature and can serve as a preventative measure to conserve or improve an individual's function (Brown, 2014). OT can intervene with executive function skills, which includes, but is not limited to, academic occupational performance.

A successful mentoring program for high-risk students was implemented at Richard Stockton College. The mentors, who were occupational therapy master's students, helped members of the program to maintain motivation, discover learning opportunities, complete financial aid and admissions application processes, studying for exams, utilizing resources within their environments, and work towards each individual's unique academic goals (Gutman, et al., 2007). The program is an example of how OT knowledge can assist mentors and tutors in digging deeper to assist students in a holistic way.

MoHO's Place in a Higher Education Setting

In one study looking for correlations between well-being, academic achievement, and academic attainment in 214 high-risk students attending a university in California, Click, Huang, & Kline (2017) found that having a high sense of well-being can predict academic success. In a relevant study, Yazdani, Jibril, & Kielhofner (2008) explored the relationship between the components of MoHO and student well-being. Using the Role checklist, Occupational Self-Assessment, the Affectometer, and the Satisfaction with Life Scale, fourth year occupational therapy students evaluated 667 undergraduate students attending a university in Jordan. It was found that "reported roles, valuation of roles, perceived competence in volition, habituation, and performance capacity/skills, and the environment were significantly correlated with subjective well-being" (pg. 126). Yazdani explains how those with a high sense of well-being tend to have higher self-efficacy, higher tendency to pursue and achieve goals, and higher self-control and self-reflection skills, while those with a lower sense of well-being tend to avoid being challenged and "withdrawal from life" (pg. 127). If student well-being is determinant of academic

success (Click, Huang, & Kline, 2017), and MoHO provides the tools for understanding the components of well-being (Yazdani, Jibril, & Kielhofner, 2008), then occupational therapists can use MoHO theory to assist learning centers in serving high-risk students with complex occupational needs.

The broad spectrum of populations that benefit from OT services certainly includes college students, especially those in need of additional support as they transition into a more demanding academic environment. OT consultation can influence the services provided to college students, and OT theories like MoHO can guide educators as they work to support their students' success in the most effective ways possible. According to Kielhofner, "occupational participation is both personal and contextual" (Kielhofner, 2008, pg. 102), and "a complex interaction of personal and environmental factors ultimately shapes the full spectrum of occupational participation in a person's life" (Kielhofner, 2008). OT can use MoHO to define the complex influences over a person's, or in this case, a student's, occupation. Specific strategies have been derived from MoHO, and an OT consultant can help learning centers adapt tutoring and mentoring approaches to fit the needs of the specific and unique environment, along with its unique population of students.

Students seeking services lack the basic study skills, time management abilities, and stress management tactics to perform at the level needed for academic success at a college level (Fernández-Martín, & Fernández-Balboa, 2011). Current tutoring and mentoring programs do not directly address the underlying influences of that student's occupational participation: motivation, habituation, values, interests and personal causation. In order to increase performance, OTs must take in to account all the aspects

of that individual's occupational motivation (Click, Huang, & Kline, 2017; Yazdani, Jibril, & Kielhofner, 2008). Taking a closer look at a college student's occupational profile by using MoHO as a frame of reference can help isolate the cause of poor performance in academic occupations. Doing so also defines a role for OT in the higher education setting as a consultant. "High expectations are a condition for student success, low expectations a harbinger of failure. Simply put, no one rises to low expectations" (Tinto, 2012). A student's perception of their occupational performance must shift and they must believe that it is possible to succeed. OT can foster the growth mindset within students by guiding the use of metacognitive strategies.

CHAPTER 2

Journal Article Manuscript

Title

Metacognition and MoHO Collide: Creating Effective Tutor and Mentoring Programs for College Students on Academic Probation

Abstract

Current legislation offers K-12 students identified as having special needs support in school settings, resulting in increased opportunities including attending college. In college, these students become part of a population of high-risk students. In an effort to retain students, universities create assistive learning centers offering tutoring and mentoring programs. Best practices in these centers include implementation of metacognitive strategies which are proven to improve student outcomes, but not all students utilize them. This study implemented a tutor and mentor training program developed through Occupational Therapy consultation in a university assistive learning center. Tutors and mentors in the center were trained in the Model of Human Occupation (MoHO) theory and metacognitive strategies. An assessment derived from theoretical underpinnings of MoHO was completed by students and facilitated by tutors and mentors exploring self-perception of motivation, habituation and performance in academic-related occupations. Pre- and post-assessment data, grade point average, and demographic data were collected and analyzed. Tutors and mentors guided students in metacognitive processes, fostering self-reflection and addressing motivational aspects behind academic success. By systematically learning about the student as a complex individual through the theoretical lens of MoHO and using metacognitive learning strategies, tutors and mentors

understand students better and enable students to better understand themselves, not only as students, but as holistic individuals. Findings of the study suggest modest changes in ways to address high-risk student needs for success. Implications for the role of the occupational therapist in assistive learning centers is suggested.

Theoretical Framework

Metacognition

In their textbook *Metacognition*, Dunlosky and Metcalfe (2009) define *metacognition* as "thoughts about one's own thoughts and cognitions" (pg. vii). *Metacognition* is a broad term encompassing multiple concepts and outlining the psychology behind learning (Driessen, 2014). According to McGuire (2015), a leading researcher of the topic, "metacognition is the ability to think about one's thoughts, be consciously aware of oneself as a problem solver, monitor, plan, and control one's mental processing, and accurately judge one's level of learning" (pg. 4), and learning how to use this information in academics can boost performance. In their book *Make it Stick: The Science of Successful Learning*, Brown, Roediger, and McDaniel (2014) debunk traditional "massed practice" learning strategies, suggesting that there are more efficient ways to learn. They outline eight learning techniques rooted in metacognitive theory, including retrieval, spaced and interleaved practice strategies, elaboration, generation, reflection, calibration, and mnemonic devices, which are used frequently in university tutoring and mentoring programs. These strategies not only enhance learning but foster self-regulatory behavior in students (Nash-Ditzel, 2010) and improve student outcomes, resulting in metacognition being considered best practice for student success

programming (Cook, Kennedy, & Mcguire, 2013; Zhao, Wardeska, McGuire, & Cook, 2014; McGuire & McGuire, 2015).

Model of Human Occupation

Kielhofner's Model of Human Occupation (MoHO) (2008) provides a framework through which occupational therapists approach interventions, guiding the therapist to discover an individual's motivation behind occupation, the habits used to participate in occupation, and the capacity for occupational performance. MoHO also takes into consideration the influence the environment has over occupation. Motivation includes personal causation, values, and interests; these are the client factors which steer occupational choice and influence occupational participation. Motivation behind occupation leads to the habituation of it, which includes everyday habits, routines, roles, and rituals. Examples of habits of typical college students include setting a daily schedule, attending classes, eating regularly, practicing daily hygiene, completing homework, and engaging in social occupations. Performance capacity refers to what an individual is capable of doing and how one perceives one's abilities. All three combine to produce participation, which is defined as what an individual is actually doing, including performance and skill. All of this interacts with the outside influence of the environment, which affords opportunities for or restrictions of participation for every individual in a unique manner (Kielhofner, 2008).

The Connection between Occupational Therapy and Pedagogical Theory

Defining how metacognitive strategies are used in tutoring sessions to address both academic and non-academic performance issues can illustrate the ease of integration of MoHO with metacognitive learning strategies. The metacognitive learning strategies

that Brown, Roediger, and McDainel have outlined in *Make it Stick* (2014) that are used in this study are elaboration, generation, reflection, and calibration. Elaborating is identifying meaningful connections to the information being learned, whether it's recalling a recent study that relates or linking the information to an out-of-class experience. In tutoring, elaboration is facilitated by the tutor during academic learning, but in this study, it is also seen when the student is asked to make meaningful connections to their academic success; the student elaborates by finding another layer of meaning behind schoolwork. Generation involves attempting problem solving before knowing what the solution is. Tutors can encourage this by asking the student to attempt answering a difficult question before providing them with the answer. In this study generation is also encouraged when the student and tutor discuss potential solutions for performance areas of concern in academic occupations. Reflection is encouraged when a tutor asks a student to pause and review the material they have learned so far, thinking about what questions they have or what they understand well. MoHO guides reflection when the tutor asks the student to think about what other life factors are influencing academic occupations. Students will gain skills in reflective thinking, a beneficial skill in academic or nonacademic endeavors. And lastly, tutors use calibration by using quizzes or tests to eradicate illusions regarding performance in a particular academic area, obtaining a realistic baseline to work from. In this study calibration will also be used by tutors and mentors in the administration a paper self-assessment. This guides students to take a look at the areas of academic occupations outside of strictly comprehension of material to obtain a realistic view of what else, besides a lack of knowledge, might be causing a low grade point average.

Assisting High-Risk College Students

Legislation promoting equal and inclusive education for all has led to universities accepting a wider scope of students from diverse backgrounds. A population of students from homes of low socioeconomic status, diverse races and cultures, first generation college students, and students with physical, mental, or learning disabilities are accepted into universities to pursue their degrees (Mudge & Higgins, 2011). While in the K-12 system, these special populations may have been eligible for specially designed learning services as a part of various federal statutes, including the Individuals with Disabilities Education Act (IDEA) of 2004, Section 504 of the Rehabilitation Act of 1973, and the Every Student Succeeds Act (ESSA) of 2015. Universities are concerned with the retention of these students, and as a result, they are often referred to as high-risk for dropping or failing out of college.

Universities like Eastern Kentucky University (EKU) have begun to respond to challenges presented by the acceptance of underprepared students or students with disabilities. Assistive learning centers offer services like tutoring and mentoring, and intentional outreach to high-risk students is often performed (The current nature and scope of learning assistance, 2010) with the intention of providing students with the supports they need to be successful in the higher education environment.

The literature available reviews the effectiveness of such programs and shows their benefit and positive results. Tutoring programs provide students support with course material while mentoring programs offer students guidance when navigating their new environments, and a strong base of evidence verifies the benefits (Arco-Tirado, Fernández-Martín, & Fernández-Balboa, 2011; Cornelius, Wood & Lai, 2016; Dappen &

Isernhagen, 2005; Gardner, Murly, & Chalik, 2012; Gutman et al., 2007; Laskey & Hetzel, 2011; Schindler & Cajiga, 2015; Tinto, 2012; Walvoord & Pleitz, 2016). Tutoring and mentoring help students raise grade-point-averages, and universities can increase retention rates as a result (Laskey & Hetzel, 2011; Tinto, 2012).

What the literature lacks, however, is an exploration of how to continue improving outcomes. If universities are concerned with increasing retention rates by assisting high-risk students, a drive should be present to identify best practices in tutoring and mentoring to better assist students in managing their complex and unique sets of challenges. In order to understand and meet the needs of the student, assistive learning services should search for new perspectives on tutoring and mentoring programming, because "innovative programming is needed to bridge that gap between intended results and reality" (Gardner, Mulry, & Chalik, 2012, pg. 259).

At Eastern Kentucky University (EKU), the multidisciplinary tutoring center on campus is the Student Success Center (SSC), employing 30 student tutors/mentors who collectively can assist with most courses offered at Eastern Kentucky. The SSC offers a variety of services to students, including tutoring, mentoring, workshops, advising, and general information (Eastern Kentucky University tutoring services, 2015). Intentional outreach is conducted by the SSC to groups of high-risk student populations, like first generation freshman. Additionally, students can be referred to the SSC by professors, Residence Hall staff, or other university staff members. Fourth week progress reports and midterm grades are monitored and outreach is targeted to students who do not have satisfactory reports or passing grades. Students who earn a 2.0 grade point average (GPA) or lower during one semester are placed on academic probation for the next. If their GPA

is not raised to above a 2.0 during the semester of academic probation, that student is at risk for remaining on academic probation, or advanced to an academic suspension status. The SSC is the main supportive service to help raise GPA and retain this collection of high-risk students.

Role of Occupational Therapy in Higher Education

Occupational Therapists (OTs) serve an increasingly broad range of populations. According to the American Occupational Therapy Association (AOTA), occupational therapists "help people across the lifespan participate in the things they want and need to do through the therapeutic use of everyday activities (occupations)" (AOTA, 2017). College students and their occupations are certainly included within this scope of practice. OT as a consulting discipline can and should intervene in a higher education setting. OT can help meet students' occupational needs and create opportunities for their academic success. Limited literature exists exploring the connection between the two realms, but because of the broad scope of practice and mission of OT services to assist with all occupations across the lifespan, the college student can benefit from OT services, making higher education an appropriate setting for occupational therapy intervention. OT can identify the needs of college students through "activity analysis to break down cognitive and psychosocial tasks into their component parts to ensure that skill demands match a client's level" (Gutman et al., 2007, pg. 23). Traditional tutor and mentor training does not provide this line of thinking. Thus, more research is needed to establish and strengthen this relationship.

Within the higher education setting, occupational therapists can help enhance current assistive learning services for college students. Schindler & Cajiga (2015)

presented such a role for OTs in a higher education setting when they explored the transition from high school to college for students with Asperger's Disorder (AD). An OT mentoring program was implemented; second year OT master's students were paired with 11 students with AD, meeting once or twice weekly for two hours, and under the supervision of OT faculty. OT students performed clinical assessments to identify strengths and weaknesses, collaboratively set goals, and developed intervention plans targeting the goals. The Canadian Occupational Performance Measure (COPM), used as an initial assessment and again as a reevaluation post-intervention, and retention rates were both used as quantifiable evidence, and at the end of the OT mentoring program, nine of the 11 students were retained at the university. Results of the COPM pre- and post-assessment showed improvement in both occupational performance and satisfaction. The population who will benefit from OT consult in assistive learning centers is not limited to college students with AD, but includes all groups of high-risk students. This research attempts to explore the breadth of effectiveness of OT services for all high-risk students who need learning supports in college.

When considering Occupational Therapy theory, the Model of Human Occupation (MoHO) is an excellent fit for intervention in assistive learning environments. Yazdani, Jibril, & Kielhofner (2008) explored the relationship between the components of MoHO and student well-being. Using the Role checklist, Occupational Self-Assessment, the Affectometer, and the Satisfaction with Life Scale, fourth year occupational therapy students evaluated 667 undergraduate students attending a university in Jordan. It was found that "reported roles, valuation of roles, perceived competence in volition, habituation, and performance capacity/skills, and the environment were significantly

correlated with subjective well-being" (pg. 126). Yazdani explains how those with a high sense of well-being tend to have higher self-efficacy, higher tendency to pursue and achieve goals, and higher self-control and self-reflection skills, while those with a lower sense of well-being tend to avoid being challenged and "withdrawal from life" (pg. 127). In a relevant study looking for correlations between well-being, academic achievement, and academic attainment in 214 high-risk students attending a university in California, Click, Huang, & Kline (2017) found that having a high sense of well-being can predict academic success. If student well-being is determinant of academic success (Click, Huang, & Kline, 2017), and MoHO provides the tools for understanding the components of well-being (Yazdani, Jibril, & Kielhofner, 2008), then occupational therapists can use MoHO theory to assist learning centers in serving high-risk students with complex occupational needs.

Method

Design

This pilot tutor and mentor training program utilized a pretest/posttest design for tutoring/mentoring high-risk students at a regional university. Training workshops for tutors and mentors were developed using the Model of Human Occupation (Kielhofner, 2008) to promote better understanding of academic occupations in the university environment. To do so, an assessment tool was developed by the authors, called the Student Success Self-Assessment (SSSA), and administered at the beginning of the semester as a pre-assessment and as the semester came to a close as a post-assessment to measure the change in motivation, habituation, and performance. The assessment also served as a metacognitive tool, encouraging students to reflect upon all of their

occupations as a whole, and what factors outside of course content comprehension influence GPA.

Participants

The population of students who participated in the study was a collection of freshmen who had earned below a 2.0 in the Fall 2016 semester and were placed on academic probation for the following Spring 2017 semester. Each student on academic probation signed a Success Agreement (Appendix B), outlining the expectations for the semester and giving the student a choice between three academic goals: tutoring, mentoring, or workshops. The students who selected either tutoring or mentoring for academic support were required to work with the tutors and mentors throughout the spring semester and completing a pretest Student Success Self-Assessment (SSSA) at the beginning of the semester and a posttest SSSA at the end. The number of students who initiated working towards the goals in their agreements and completed a pretest SSSA was much less than the total amount of students who selected tutoring and mentoring as a goal. Out of this group of students who completed a pretest SSSA, only N=14 participated in a full semester of tutoring or mentoring and completed a posttest self-assessment. As a result, these 14 students, 10 males and 4 females, were the only students eligible to participate in the full study.

Data Collection and Analysis

In addition to pre- and post-SSSA data, GPA and other demographic information was gathered about each participant following standard practices in the Student Success Center. Institutional IRB was obtained as a matter of program review.

Student Success Self-Assessment Administration

The Student Success Self-Assessment (SSSA) was modeled after a tool derived from MoHO, the Child Occupational Self-Assessment (COSA). The COSA is an assessment built for children the age of 2-17 and assesses the competence in and value of daily activities. Because the college population is typically at least 17 years of age, the COSA can be modified to fit typical areas of occupational participation of college students. The resulting SSSA lists 11 academically-focused occupations of typical college students, which the student will rank in importance and difficulty (Figure 1). The tool was reviewed by a panel of experts in the content area. Importance of occupation represents motivation and amount of value, and difficulty represents competence and occupational performance and can be indicative of poorly established habits and routines in the student role. The SSSA serves to identify which areas of academia the student needs help managing and the reason behind the need.

Many high-risk students are not willing to change their habits because they apply a fixed mindset and feel as though they do not have the capacity to improve (Meierdirk, 2016). The SSSA is a metacognitive tool, rooted in the learning strategy of calibration, but rather than assessing course material comprehension, it serves to provide a baseline of a student's motivation, habituation, and performance skills which influence that student's ability to achieve satisfactory grades. MoHO and metacognition collide in the SSSA, and developing goals that address areas of concern on the assessment leads students to think big and find solutions to their problems, while empowering them to take ownership of their student role and feel capable of academic success.

The administration of the SSSA utilizes a metacognitive learning strategy, calibration. Calibration is used in the form of a self-assessment to identify areas of concern outside of unsatisfactory performance in classes. A student might feel empowered to know that they are capable of changing their academic outcomes without simply studying harder or longer. For example, one of the items on the SSSA asked the student to rank how difficult and important it was for the student to submit assignments on time. A student might rank this area high in both difficulty and importance, showing they value the timely submission of assignments, but perceive themselves as not skilled enough to achieve success in that area. With this training, the tutor should recognize that weaving time or stress management concepts into the tutoring or mentoring session will help this student submit assignments on time, increasing the chance of receiving a high grade. The student is enabled to change habituation of nonacademic occupations to improve the grades they receive in their courses. Another item on the SSSA asks students how difficult and important it is for them to calm themselves when they feel anxious, stressed or upset. The scores of this item might reveal that a student could benefit from utilizing the campus counseling center as a resource to alleviate symptoms of stress and enable them to focus easier on their studies. Figure 1 shows the assessment in its entirety, with 11 items targeting different areas of academic occupations. The SSSA can also be found in Appendix C.

Student Success Self-Assessment

Most difficult for me	Very difficult for me	A little Difficult for me	Not at all difficult for me	Myself	Most important to me	Very important to me	A little important to me	Not at all important to me
				Make personal connections with my classmates				
				Attend my classes				
				Turn in/submit assignments on time				
				Complete assignments				
				Ask my instructor questions when I need to				
				Clarify my ideas to others				
				Think of creative solutions when I have a problem				
				Continue to work on something when it becomes difficult				
				Calm myself down when I feel anxious, stressed, or upset				
				Complete tasks without becoming too tired or bored				
				Use strategies intentionally when I study				

Figure 1: The Student Success Self-Assessment

Results

Inspection of pre- and post--GPA, pre and post SSSA assessment scores, and student retention were the focus of data analysis. Change in average GPA of the 14 students who completed both a pretest and posttest assessment was analyzed by conducting a t-test. It was found that the change in the group's mean GPA was not significant (.1446, p=.05).

In addition to GPA, student scores for each assessment item were averaged and compared pre- to post-participation in the program. Decreases in difficulty in all but one assessment item were noted. As for importance, 5 assessment item scores increased, 5 decreased, and one remained the same. The average scores for each assessment item can be found in Tables 1 and 2, and the average scores for combined assessment items can be

found in Table 3. Because retention of the students is the goal of tutoring and mentoring, the data was also analyzed for retained and not retained students separately. This presentation of the data can be found in Tables 4 and 5.

Table 1: Average Difficulty Scores for All Students

Item	Item Description	Pretest	Posttest	Change
1	Make personal connections with my classmates	1.79	1.86	0.07
2	Attend my classes	1.71	1.43	-0.28
3	Turn in/submit my assignments on time	1.79	1.43	-0.36
4	Complete assignments	1.79	1.36	-0.43
5	Ask my instructor questions when I need to	2.14	1.79	-0.35
6	Clarify my ideas to others	2.07	1.79	-0.28
7	Think of creative solutions when I have a problem	1.93	1.57	-0.36
8	Continue to work on something when it becomes difficult	2.29	1.71	-0.58
9	Calm myself down when I feel anxious, stressed, or upset	2.57	2.07	-0.5
10	Complete tasks without becoming bored (attention)	2.29	2	-0.29
11	Use strategies intentionally when I study	2.21	1.86	-0.35

Table 2: Average Importance Scores for All Students

Item	Item Description	Pretest	Posttest	Change
1	Make personal connections with my classmates	2.43	2.43	0
2	Attend my classes	3.93	3.5	-0.43
3	Turn in/submit my assignments on time	3.79	3.57	-0.22
4	Complete assignments	3.71	3.5	-0.21
5	Ask my instructor questions when I need to	2.79	3.07	0.28
6	Clarify my ideas to others	2.31	2.86	0.55
7	Think of creative solutions when I have a problem	2.92	3.14	0.22
8	Continue to work on something when it becomes difficult	3.21	3.29	0.08
9	Calm myself down when I feel anxious, stressed, or upset	3.71	3.57	-0.14
10	Complete tasks without becoming bored (attention)	2.64	3.21	0.57
11	Use strategies intentionally when I study	2.86	2.64	-0.22

Table 3: Average Scores: All Items, All Students

	Pretest	Posttest	Change from Pre to Post	
Difficulty	22.57	18.86	-3.71	Decrease
Importance	33.93	34.79	0.86	Increase

Table 4: Scores of Students who were Not Retained (n=13)

	Average of sum of pre-test scores	Average of post-test scores	Change in average from pre to post
Difficulty	24.111	20.00	-4.111
Importance	33.111	35.111	2.0
GPA	1.3	1.2	-.1

Table 5: Scores of Students who were Retained (n=1)

	Average of sum of pre-test scores	Average of post-test scores	Change in average from pre to post
Difficulty	19.8	16.8	-3
Importance	35.4	34.2	-1.2
GPA	1.4	2.3	.9

Using data from Table 3, a t-test was calculated using paired sample procedures with a 1 tail analysis to show if student perception of difficulty and importance of academic occupation performance on the SSSA was significantly impacted by the tutor and mentor program; results can be found in Table 6.

Table 6: T-Scores for All Students

	T-Score	Significance
Difficulty	.00042	Significant
Importance	.289234	Not Significant
GPA	.1446	Not Significant

Significance level (p=.05)

Interpretation of Results

Students participating in this pilot study did not show positive changes overall related to retention in the university setting. Only one student out of the 14 was retained, and the change in GPA from the start to end of the semester was found not to be significant. While this could be interpreted as a failed intervention, it is essential to recognize that high-risk students are difficult to motivate. The lack of participation in academic probation Student Success Agreement's recommended tutoring and mentoring could have led to a smaller than anticipated sample size. While the Student Success Agreements serve to encourage and guide students in using campus resources and supports, many students on academic probation do not participate adequately to benefit from the program in place. The Student Success Self-Assessment serves to motivate students to change habituation, but without active participation in tutoring and mentoring, benefits cannot be fully evaluated.

A statistically significant decrease was evident in difficulty scores of the SSSA. This indicates that the tutor and mentor intervention is changing student perceptions of ability potential. The only item in which scores decreased overall was "make personal connections with my classmates". Building relationships and communication patterns takes time, especially with the high-risk student population. No significant changes were found within importance scores of the SSA: five items increased, five decreased, and one stayed the same. The seemingly uncorrelated changes in importance can be interpreted in a few ways, and factors that influence student perception of importance should be considered. First, when student perception difficulty in a skill decreases, their perception of that skill's importance may also decrease, as they feel a sense of mastery in performing

that area of occupation. Secondly, the population is composed of second semester freshman on academic probation who may not have a full understanding of their college experience and the importance of completing certain components of academic occupations. The self-assessment in this study serves as a tool to initiate a line of thinking about academic performance as more than just comprehending course material.

Discussion

The Harmonious Relationship between Metacognition and MoHO

When MoHO and metacognition collide, students are put in a position to think big and find solutions to their problems, all the while empowering them to take ownership of their student role and feel capable of academic success. By learning how to reflect on their own occupational choices, habits, and environmental influences through engagement in the tutor/mentor-student relationship, students gain skills in occupational adaptation. They learn about themselves and their identities, as well as reflect on their occupational performance. Yet, the question at the forefront remains: are they meeting the challenges presented within the higher education environment? The transition to independent living and fulfilling a student role remain (Leland, 2015).

The training used in this pilot program enables tutors not only to facilitate metacognitive learning of academic material by using strategies like those found in *Make it Stick*, but assist the college student with exploration into occupational competence and identity. Use of the Student Success Self-Assessment, rooted in MoHO theory, allows tutors and mentors to facilitate metacognitive learning on a larger scale, encouraging the student to reflect on what is important to them and what motivates them to succeed in their academic occupations. By addressing students' motivation and attaching meaning to

their academic occupations, students are encouraged to prioritize their academic success. In doing so, they become engaged and comfortable with the idea of modifying habits and routines to support their educational success. By approaching each student as a client of occupational therapy performing occupations within a dynamic interplay of contexts, skills, and client factors, rather than considering their performance solely in the student role, educators can begin to understand the student as a holistic individual with many roles influencing all occupations, including academic ones. Using MoHO in this context, working seamlessly with metacognitive strategies, can support high-risk students in a way that metacognitive strategies alone cannot. MoHO theory is an essential addition to training tutors and mentors, enabling them to see beyond test scores and course material comprehension. By highlighting the high-risk student's occupational competence, they are able to envision real and practical solutions to their academic underachievement, empowering them with a growth mindset and fostering self-regulatory student behavior.

Limitations

Limitations of this pilot study are evident, the most major of which is student participation and resulting sample size. The Student Success Agreement goals are recommended and not mandatory; student participation often wanes beyond the initial meeting. The number of students who signed Student Success Agreements compared to the number of students who worked to meet their goals was a limitation.

Implications for Further Research

Future research which explores the role of Occupational Therapy within assistive learning environments should consider implementation of a program which is longer in length. One semester with students who are already at risk for failing out of college is a

short length of time to have a long-lasting impact on student perception of difficulty and importance of academic occupations. Another consideration for future research and programs include providing incentives for participation. By adding a one-credit hour course offered by the Student Success Center, consistent attendance and participation would be encouraged. Integrating the programming into a classroom setting may be more motivating for the high-risk student by earning an actual grade for attending and participating in tutoring and mentoring sessions.

Opportunities to collaborate with other organizations on campus was also an area that this study did not explore. Many students with high-risk identifiers, such as those with learning disabilities like ADHD, have difficulty with social skills. These students may have participated in groups within their local communities and/or high schools, and similar groups may exist at universities. Exploring the social engagement supports for this population may assist with building a network within the new college environment.

Gathering information from the tutors and mentors is another form of feedback about the use of MoHO and metacognition in tutoring and mentoring practices. Further research should explore the tutor and mentor's perspectives about how the sessions helped students build occupational competence in their student roles. Tutors and mentors engage students in conversation regarding their self-assessment results as well as facilitate goal setting, so the tutor/mentor perspective can provide a first-hand account of the effect this approach has on student academic behavior.

Exploring role options for occupational therapy to contribute expertise and professional knowledge within a higher education setting is needed. This pilot study introduces practical ways that occupational therapists can work as consultants to

university assistive learning centers in identifying the unique needs of all students utilizing the services provided. A further idea could be for advanced fieldwork opportunities in such settings.

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APPENDICES

APPENDIX A:

IRB Approval

Congratulations! The Institutional Review Board at Eastern Kentucky University has approved your **IRB Application for Expedited or Full Review** for application entitled,**"Metacognition and MoHO collide: Creating effective tutor and mentoring programs for high-risk college students**." Your approval is effective immediately and will expire on December 31, 2017. Your stamped consent form is located under your application files. You may access it and print for the use in your study.

Principal Investigator Responsibilities: It is the responsibility of the principal investigator to ensure that all investigators and staff associated with this study meet the training requirements for conducting research involving human subjects, follow the approved protocol, use only the approved forms, keep appropriate research records, and comply with applicable University policies and state and federal regulations.

Consent Forms: All subjects must receive a copy of the consent form as approved with the EKU IRB approval stamp. You may access your stamped consent forms by logging into your InfoReady Review account and selecting your approved application. Copies of the signed consent forms must be kept on file unless a waiver has been granted by the IRB.

Adverse Events: Any adverse or unexpected events that occur in conjunction with this study must be reported to the IRB within ten calendar days of the occurrence.

Research Records: Accurate and detailed research records must be maintained for a minimum of three years following the completion of the research and are subject to audit.

Changes to Approved Research Protocol: If changes to the approved research protocol become necessary, a description of those changes must be submitted for IRB review and approval prior to implementation. Some changes may be approved by expedited review while others may require full IRB review. Changes include, but are not limited to, those involving study personnel, consent forms, subjects, and procedures.

Annual IRB Continuing Review: This approval is valid through the expiration date noted above and is subject to continuing IRB review on an annual basis for as long as the study is active. It is the responsibility of the principal investigator to submit the annual continuing review request and receive approval prior to the anniversary date of the approval. Continuing reviews may be used to continue a project for up to three years from the original approval date, after which time a new application must be filed for IRB review and approval.

Final Report: Within 30 days from the expiration of the project, a final report must be filed with the IRB. A copy of the research results or an abstract from a resulting publication or presentation must be attached. If copies of significant new findings are provided to the research subjects, a copy must be also be provided to the IRB with the final report. Please log in to your InfoReady Review account, access your approved application, and click the option to submit a final report.

Other Provisions of Approval, if applicable: None

Please contact Sponsored Programs at 859-622-3636 or send email to lisa.royalty@eku.edu with questions about this approval or reporting requirements.

APPENDIX B:

Student Success Agreement

University Advising &
Student Success Center
SuccessCenter@eku.edu

Term:_____

Admit Type: _____

Student Success Agreement

Student Name: _____ ID Number: _____

Current GPA: _____

Current/Intended Major:

_____

Major Advisor: _____

Cell Phone: _____

EKU Email Address: _____

Current Semester Courses and Grades:

_____ Midterm grade _____ Final Grade _____

_____ Midterm grade _____ Final Grade _____

_____ Midterm grade _____ Final Grade _____

_____ Midterm grade _____ Final Grade _____

_____ Midterm grade _____ Final Grade _____

Cumulative semester GPA: _____

Student must initial each statement below and fill out the back of this form:

_____ I understand that I must earn a semester GPA of a 2.0 in order to enroll for the next term, or I will be suspended from the University.

_____ I understand that I must meet with my advisor for a midterm review and advising.

_____ I will attend all class sessions.

_____ I will complete all class assignments and submit them when they are due.

_____ If I experience academic difficulty in a particular class, I will meet with my instructor immediately to discuss my progress in that course and attend tutoring sessions as needed.

_____ I will repeat failed courses as recommended by my SSA Advisor.

_____ I will meet with my Academic Advisor prior to making any schedule changes or a change of major.

For Student Success Agreement Advisor:

_____ Student Completed Agreement.

_____ Student did not complete agreement. Notified Registrar's Office.

_____ _____

Advisor Name Date

Revised January 17th, 2017

Student must select one goal in each of the following boxes for a total of two personal goals for the semester (one academic and one social/well-being):

Academic Goal:
Choose one of the following actions that you will complete this semester and initial on the line next to your choice:

_____ I will schedule and keep a weekly appointment for tutoring at the Student Success Center.
The Student Success Center is located on the first floor of the library. After the initial appointments, the tutor may refer the student to a content-specific tutoring area and track the student's check-ins.

_____ I will attend a minimum of four academic workshops offered at the Student Success Center.
The Student Success Center is located on the first floor of the library. Workshops offered will include time management, study skills, reading strategies, test-taking tips, career and majors advising, etc. The student is responsible for attending four of these workshops, watching the workshop schedule, and attending these as early in the semester as possible.

_____ I will meet every other week with a mentor or Success Coach who is approved by the Student Success Center or the Multicultural Center.
The Student Success Center and Multicultural Center has a database of trained mentors at EKU. Students may either be assigned one from the Center or may choose a faculty or staff member for approval. Note that the mentor must enter meeting hours into the Center's system.

Social/Well-Being Goal:
Choose one of the following actions that you will complete this semester and initial on the line next to your choice:

_____ I will go to the EKU Counseling Center or the Center for Student Accessibility for an assessment meeting and follow up as recommended by the Counseling Center or Center for Student Accessibility. The EKU Counseling Center is located on the fifth floor of the Whitlock Building. They assist students with a wide variety of needs such as test anxiety, math anxiety, grief counseling, stress management, relationship management, and mental health concerns. I understand that I must report this to my Student Success Agreement Advisor.

_____ I will go to the Center for Career and Co-op for assistance with finding a job or choosing a major and follow up as recommended.
The Center for Career and Co-op is located on the fourth floor of the Whitlock Building. They help students develop resumes and cover letters, search for jobs, find internships, or search for a fitting major. I understand that I must report this to my Student Success Agreement Advisor.

_____ I will join a registered student organization.
Registered student organizations are listed in OrgSync. For further assistance, students may contact the Office of Student Life. I understand that I must report this to my Student Success Agreement Advisor.

_____ I will attend three EKU-sponsored events.
I understand that I must log-in at the events and report this to my Student Success Agreement Advisor.

_____ I give my permission to the academic advisors supporting me through my academic probation period to access my Blackboard data to review my updated grades and assignments in order to assist with my academic success. I know that this information will remain confidential and will only be used to support my progress.

I understand that if I fail to meet the requirements of this agreement, I may be suspended from EKU.

Student Signature: _____ Date: _____

Revised January 17th, 2017

APPENDIX C:

Student Success Self-Assessment

Student Success Self-Assessment

Most difficult for me	Very difficult for me	A little Difficult for me	Not at all difficult for me	Myself	Most important to me	Very important to me	A little important to me	Not at all important to me
				Make personal connections with my classmates				
				Attend my classes				
				Turn in/submit assignments on time				
				Complete assignments				
				Ask my instructor questions when I need to				
				Clarify my ideas to others				
				Think of creative solutions when I have a problem				
				Continue to work on something when it becomes difficult				
				Calm myself down when I feel anxious, stressed, or upset				
				Complete tasks without becoming too tired or bored				
				Use strategies intentionally when I study				

APPENDIX D:

Authorship Guidelines

Journal of College Reading and Learning

Manuscript Preparation: Feature Articles

Feature articles include theoretical analyses and reports of original research. All articles should connect theory, research, and practice.

Submissions are accepted on a rolling basis.

Submission Guidelines

- Writing, citation, and documentation style must follow the *APA Publication Manual* (6th edition) guidelines; manuscripts not conforming to APA may be returned without review.
- Acceptable text file format is Microsoft Word (.doc, .docx, etc.).
- Authors are responsible for the accuracy of all the statements in their manuscript as well as obtaining permissions for reprinting figures or quotations that exceed fair use regulations.
- Previously published articles or manuscripts under consideration elsewhere cannot be considered.
- Figures and tables should be all black and white and should be submitted as separate files as well as embedded in the manuscript itself. A short descriptive title should appear above each table with a clear legend and any footnotes suitably identified below. All units must be included. Figures should be completely labeled, taking into account necessary size reduction.
- Images or graphics should be sent as separate files and should be 300 dpi or higher, sized to fit on the journal page, EPS, TIFF, or PSD format only.
- Color art will be reproduced in color in the online publication at no additional cost to the author. Color illustrations will also be considered for print publication; however, the author will be required to bear the full cost involved in color art reproduction. Please note that color reprints can only be ordered if print reproduction costs are paid. Print Rates: $900 for the first page of color; $450 per page for the next three pages of color. A custom quote will be provided for articles with more than four pages of color. Art not supplied at a minimum of 300 dpi will not be considered for print.

Information for Authors

- Authors are required to secure permission to reproduce any figure, table, or extract from the text of another source. This applies to direct reproduction as well as "derivative reproduction" (where an author has created a new figure or table which derives substantially from a copyrighted source).
- Manuscripts do not generally exceed 6,000 words.
- Authors should submit the following:
    - a masked version of the manuscript, including references and an abstract of up to 125 words (no author information should be included).
    - an unmasked version of the manuscript with a cover page that includes the manuscript title, all authors' names, institutional affiliations, and full contact information for the first (contact) author.

***JCRL* Forum**

The *JCRL* Forum welcomes a wide range of manuscripts, from those that are theoretically based, research-supported practice, to those that review or respond critically to recently published manuscripts or issues in the field. The purpose of the Forum is to invite nontraditional manuscripts that create and sustain interesting theoretical and pedagogical discussions.

Submissions to the Forum should be no more than 2,500 words in length and do not include abstracts. Forum publications are selected through consensus of the *JCRL* Editorial team. As with all manuscripts, authors are required to follow the 6th edition of the *APA Publications Manual*.