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Michael Frizell



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Michael Frizell, M.F.A., is the immediate past president of the National College Learning Center Association. He served as Immediate past president, president, and vice president from 2016-2019 after a stint as corresponding secretary from 2011-2012. Michael earned the NCLCA Certified Learning Center Professional (Level 4) lifetime achievement designation in 2012 and has served on the Frank Christ Outstanding Learning Center Award Committee, President's Outstanding Learning Center Award Committee, Innovative Use of Technology Award Committee, and the Conference Committee. He was also the first chair of the Immediate Past President's Council from 2018-2020.

In addition to his leadership in NCLCA, since 2012, Michael has served as the editor of *The Learning Assistance Review*, NCLCA's peer-reviewed journal. *TLAR* seeks to foster communication among higher education learning center professionals by publishing two issues a year. During the COVID-19 crisis in 2020, he published a collection of essays, *Rising to the Challenge: Navigating COVID-19 as Higher Education Learning Center Leaders*, describing how learning center leaders reacted to campus-wide shutdowns.

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About *The Learning Assistance Review*

The Learning Assistance Review is an official publication of the National College Learning Center Association (NCLCA). NCLCA serves faculty, staff, and students in the field of learning assistance at two- and four-year colleges, vocational and technical schools, and universities. All material published by *The Learning Assistance Review* is copyrighted by NCLCA and can be used only upon expressed written permission.

NCLCA's Definition of a Learning Center

The National College Learning Center Association defines a learning center at institutions of higher education as interactive academic spaces which exist to reinforce and extend student learning in physical and/or virtual environments. A variety of comprehensive support services and programs are offered in these environments to enhance student academic success, retention, and completion rates by applying best practices, student learning theory, and addressing student-learning needs from multiple pedagogical perspectives. Staffed by professionals, paraprofessionals, faculty, and/or trained student educators, learning centers are designed to reinforce the holistic academic growth of students by fostering critical thinking, metacognitive development, and academic and personal success.

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Letter from the Editor

Michael Frizell
Missouri State University

After the National College Learning Center Association’s annual conference in Reston, Virginia, it dawned on me:

I’ve been a part of the executive board since 2011.

My first NCLCA conference was in 2009. At the urging of former NCLCA treasurer and Associate Provost for Student Development and Public Affairs at Missouri State University, Rachelle Darabi, I submitted a proposal about writing and publishing in the field of learning assistance. After presenting, Jack Truschel and David Reedy, long-standing members and now friends, urged me to join the board. I resisted as the Bear CLAW (Center for Learning and Writing) at Missouri State University was in its infancy. I was already struggling to manage my day-to-day activities. But after careful consideration, I relented, appointed to a vacant position, the corresponding secretary. My job was assisting Learning Center Leadership Certification coordinator Rae Maslana in compiling application packets and organizing reviewer responses.

When Christine Reichert, editor of *The Learning Assistance Review*, announced her retirement, I put myself up for consideration. It was a better fit for my skills, and I figured if I wasn’t selected, I at least announced to NCLCA and my university that I was willing to

tackle challenging jobs as I fumbled through learning center theory and practice.

When I assumed the role in 2012, the board was preparing for the annual conference in Reno – my last stand as Corresponding Secretary (and, incidentally, a position that grew into the Marketing Officer position). Although a paid, non-voting board member, I vowed to attend every monthly meeting I could because I was starting to see NCLCA as a support system. While I struggled with finding a community on my campus that understood the often-chaotic environment of a learning center, I grew to rely on my colleagues across the country. I also realized that NCLCA's strength was fostering that community, often setting us apart from other conferences I attended in my early days as a practitioner.

I was approached to run for president on several occasions, but the role frightened me a little as it was a three-year cycle. The president was first the vice president, then president, then immediate past president. The former role – that of the VP- scared me. The VP ran the annual conference, NCLCA's biggest event. I wasn't afraid of organizing the event; I wanted to be a good steward of our members' money, and I've never been comfortable with that, even in my day job. But I did it anyway.

My conference was held at the Menger Hotel in San Antonio in 2017. As I suspected, it was a challenge but well worth my time and investment. I assumed the presidency in 2018 in Niagara Falls – our

largest conference to date. After working with the affiliates and chairing the newly formed Past-President's Council, I thought my time leading the board had ended, and I was satisfied that I left it better than I found it. But I found that I missed it – the camaraderie, the challenge of leadership – and ran again during the pandemic, assuming the role of vice president in time to organize the 2021 annual conference in Birmingham, Alabama.

I had my hands full. The board waited until six months before the conference before deciding we'd move forward with it instead of negotiating another date. That date - likely 2025 – was all that was left after former president Melinda Coleman was forced to cancel the 2020 conference in Salt Lake City and move it to 2024 and 2026 because that was the best option available to us unless we wanted to pay a hefty fine. So we moved forward with the mantra, "If not now, when?" ringing in my ears.

The conference made about \$300. That was no mean fete as I was in constant negotiation with the hotel while stripping the conference of frills to be a good steward of other people's money while delivering the gathering our members are used to experiencing.

And now we're here: I stepped down from the presidency in Reston. The incredible Dana Talbert takes the lead chair. But I found I wasn't done. I was elected as the Vice Chair for CLADEA, the Council of Learning Assistance and Developmental Education Associations, the governing board for kindred organizations

NCLCA, CRLA, ACTP, and ACTLA, with plans to add more to our ranks.

I didn't join NCLA for accolades. Instead, I joined a family that has helped me more than words can say professionally and privately. When I needed surgery – twice – the board sent me well wishes and flowers. A beautiful spray arrived when my father died, so I knew they were thinking about me. And then, Dana and the board sent me this:



I teared up on that stage because that's the way I hoped our members would remember my leadership of their organization:

"Filled with heart and humanity."

Thank you for trusting me with your organization.

Michael Frizell, October 14, 2022

Showing What We Do: Mock Tutorials during Tutor Training Orientation in the University Writing Center

Juhi Kim

The Ohio State University

Abstract

The shift in literacy education has reshaped the perspective of writing instruction in its theory and philosophy of the writing center in the US. This study examines how the writing center tutors instruct themselves for the work of writing instruction through mock tutorials. The tutors demonstrate how they make sense of the collaborative process of writing instruction for both cases with an ideal tutee and a troubled tutee during the tutor training orientation. This study provides the transcripts of the mock tutorials and analyzes the talk in interaction during the tutorials.

Keywords: mock tutorial, tutor-training, collaborative process, writing tutorial, writing center

Show What We Do: Mock Tutorials during Tutor Training Orientation in the University Writing Center

Introduction

In a small glass-walled cubicle, two chairs and a round table with a computer are placed in the center. On the round table, there are pencils, colored pens, and a highlighter with a small notepad ready for use. Right next to the cubicle, the same-looking cubicles surround the room next to each other. In the center of the room, surrounded by those cubicles, a comfy-looking sofa and cushioned chairs, along with a coffee table, are located. A couple of students are sitting and waiting for their appointments with their papers in hand. Inside the cubicle, a tutor and a tutee are sitting next to each other at the table. They are looking at the paper between them and reading it together. The tutor marks on the paper - circling, underlining, and highlighting - and the tutee takes notes on the paper. The tutor points at a line on the paper and asks a question; the tutee answers and explains to the tutor. They read the writing that the tutee brought, discuss what they read, and share their understanding.

This is the typical scene of the tutorial area in the writing center. The tutor and the tutee are sitting next to each other, and the paper is placed in between them, not necessarily on the tutor's side, but in between. The tutor reads the paper, marks on the paper but does not correct it. They work on the problems together by talk. The tutee

takes notes and corrects sometimes. The same work sometimes is done through the computer screen instead of printed paper but the way they work with the writing is still the same. Their work for the writing tutorial is performed by talk.

The university writing center in the US was initiated as a writing lab in its inception in order to help the domestic students who have deficiency in academic writing; however, along with the change of the concept of the literacy education, the pedagogy of the writing instruction has been evolved and reformulated from the traditional concept of error-correcting remedial services to the socially negotiated process in the contemporary writing center (Lunsford, 1991; North, 1984). The concept of writing instruction in the traditional writing center was fixing the mechanical errors to make the paper error-free; however, the new concept of writing instruction in the contemporary writing center is focusing on the *process* of writing, not the product of writing (Harris, 1986, 1992; Lunsford, 1991; North, 1984). Thus, in this regard, writing instruction during the tutorial is a socially negotiated collaborated process between the tutor and the tutee. This change of the pedagogical approach of the writing instruction puts its emphasis of the instruction on the *writer* in the *writing process*, not the writing as a product. The instruction is conveyed through *talk*, not through text.

This new concept of writing instruction in the writing center is declared and supported by North (1984), “The writing center is to produce better writers, not better writing” (p.438). As stated, teaching writing in the old scheme of the writing center was a straightforward error-correction paradigm, which viewed knowledge as immediately accessible, measurable, and a conveyable exterior substance; however, the new scheme of the contemporary writing center views writing as a collaborative process, which is abstract and ambiguous to articulate clearly what they do and how they enact writing instruction in the new paradigm. Thenceforth, writing centers have become engaged in the task not simply of teaching writing, but also teaching how it will teach writing.

What the writing center does for the work of writing is closely tied to how they prepare novice-tutors in the tutor-training orientation and what they share about their work during the staff meetings. The tutor-training orientation and staff meetings are the places that show and share *how we work* in the writing center. Particularly, the mock tutorials demonstrated during the tutor-training orientation show vividly *what we do* during tutorial, and share their ideas about the work of writing tutorial with one another. Also, the issues and concerns about their actual tutorial experiences during the staff meetings are shared and discussed. They share their knowledge as members of the writing center by

showing and sharing what they do and how they do it across the multiple sites of instruction in the writing center. Saying what we do and showing how they do it represent how the contemporary writing center views writing instruction as it is embedded in the daily work of the tutorials, staff meetings, and tutor-training programs.

In this regard, I will examine how the writing center instructs themselves and others in *showing* and *sharing* what they do for the work of writing instruction and how they make sense of the work of the *collaborative process* of writing instruction through the mock tutorials during the tutor training orientation. Along with the ethnographic data from the center, I will provide the transcripts of the mock tutorials that the tutors demonstrated during the orientation, for both cases with an ideal tutee and a troubled tutee, and analyze their talk-in-interactions for the writing tutorials. In these instructional sites, the new paradigm of the writing instruction is manifested as a practical enactment for the work of writing tutorials.

Literature Review

University Writing Centers in the US

University writing centers have played a significant role in university education for the last 50 years since they were established as an English department “writing lab” (North, 1984) in the US. Along with shifting concepts of literacy from home-based

literacies in the eighteenth century to standardized schooled literacy in the twentieth century, the pedagogy of the writing center has also changed since it first appeared in the 1930s. Initially, the instruction of the writing centers focused on remediation services for the students who were deficient in their writing ability; however, their services broadened to a wide range of academic services subsequently for students, faculty, and staff across departments (J. Kim, 2014, Thonus, 2002, Y. Kim, 2000).

The theory and philosophy of writing instruction have been reformulated as its focus has moved from text-oriented perspectives, based on the traditional models of rhetoric and grammar, to the collaboration-focused perspective of social constructionism. Collaboration-focused theory and practice is the most prevalent theory in contemporary writing center instruction (Murphy & Sherwood, 1995; Thonus, 1998, 1999b; Whitted, 1966; Y. Kim, 2000). Traditionally, literacy was defined as a decoding skill, which is the ability to read and write. Graham (1980) defined literacy primarily as a “cognitive enterprise,” which refers to the “ability to read, communicate, compute, develop independent judgments and take actions resulting from them” (p. 127). As the concept of literacy has shifted within a school context from cognitive ability, decoding and encoding skills, to a collection of skills and talents as a socially constructed phenomenon, literacy learning has been focused on as a process, which is acquired in

everyday life through interactional exchanges and the negotiation of meaning in many different contexts (Cook-Gumperz, 1986). This social perspective on literacy views learning not only as the acquisition of cognitive, psychological skills but also as a social process of demonstrating competence and knowledge ability (Cook-Gumperz, 1986). Writing centers may have taught *rules* of correct writing at one time; however, the curriculum of the contemporary writing center is more than just teaching rules. It is rather how to shape the instruction that the writing center provides and how to make sense of the instruction between text and talk through writing and speaking in the face-to-face tutorials.

Learning Through Collaborative Engagement

Vygotsky (1978, 1986) viewed learning as a social activity. Learning takes place primarily through the social interaction with experts such as adults or capable peers. By joining the social practice with the experts, the novice learns how to perform the activities to achieve the shared goals. Vygotsky (1978) defined the space where the novice and experts interact with each other as the *Zone of Proximal Development* (ZPD), which is the “distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers” (p.86). The interactions occurring in the ZPD are of two different levels: interpersonal and

intra-personal interaction. By participating in the social practice with the guidance of experts, the learner can acquire knowledge both from the inter-personal interaction with the members in the community, and from the intra-personal level of interaction occurring in the learner's experience between the prior and the new. The knowledge achieved from the internal level of intra-personal interactions occurs from the experience of the exterior level of interpersonal interactions with the community members. Both inter- and intra-personal knowledge development processes require interactions that are mediated by participatory engagement of the social practice (Vygotsky, 1986).

Scaffolding Through the Transformative Process

Along with the concept of how learning occurs in the ZPD, Wood et al. (1976) introduced scaffolding as a strategy that the tutor can help a student solve a problem and achieve a goal beyond their current level of abilities. Wood et al. (1976) defined scaffolding as:

a process that enables a child or novice to solve a problem, carry out a task, or achieve a goal which would be beyond his unassisted efforts. This scaffolding consists essentially of the adult "controlling" those elements of the task that are initially beyond the learner's capacity, thus permitting him to concentrate upon and complete only those elements that are within this range of competence. (p.90)

Wood et al. (1976) discussed that the tutor must be able to

demonstrate and correct students' errors and motivate the students to perform the task successfully as well as the students' need to actively participate to learn the strategies and principles. From other studies that Wood & Middleton (1975) and Wood & Wood (1996) conducted about effective instruction, they found the "region of sensitivity to instruction" (Wood & Middleton, 1975, p.181), which enables the most effective instruction for the child to measure their current task ability and if they are ready for the next level of the task. If the child succeeds, the next level of intervention for instruction should offer less help; if not vice-versa (Wood & Wood, 1996). Along with Vygotsky's ZPD theory, the concept of scaffolding as an effective strategy for learning has been expanded in various concepts by many scholars. (Brown et al., 1989; Brown & Palinscar, 1987; Chin et al., 2004; Gallimore & Tharp, 1990; Rogoff, 1990). Thompson (2009) and Mackiewicz & Thompson (2014) analyzed how experienced tutors employ the strategies during writing tutorials for instruction, cognitive scaffolding, and motivational scaffolding verbally and nonverbally, and suggested the detailed specific strategies that the tutors use for satisfactory conferences for the resources for the tutor training program.

Not only in the research about writing tutorials, the concept of scaffolding was employed widely in various educational fields as an important concept, particularly highlighting the transformative process of learning. Rubin and Kantor (1984) suggested that helping

the students to reduce the gaps between their speaking and writing could facilitate not just their “mechanic skills” such as articulation, spelling, and punctuation but also the “organizational skills” that include the discourse and knowledge of language pragmatics. Making the transition freely between speaking and writing, between oracy and literacy, is parallel with the Vygotsky’s theory of learning between the interpersonal and intrapersonal process. By making a connection between speaking and writing and enhancing both skills, learners can organize their thoughts and share knowledge that is transformed from their oral discourse into conversation (Rubin & Kantor, 1984; Weissberg, 2008). Hacker and Graesser (2010) studied the collaborative dialogue in naturally occurring tutoring that enhances the students’ reading comprehension. Sharing their thoughts through dialogue enables reciprocal teaching and collaborative learning. Polman and Pea (2010) carried out a study on how the transformative communication draws the students into knowledge development in the project-based science classrooms. What the teacher did was scaffolding students’ work in the classroom project by modeling, structuring, and coaching, which is supporting and guiding the students’ work along the way. The transformative communication takes place from the mutual appropriation mediated by interaction between thinking and knowing, and creates meaning from the transformative process from students’ actions into more successful

moves. For the learners to interact effectively in the language-mediated educational context, utilizing the different modes of language between speaking and writing, and listening and reading is essential to make the instruction successful. In this light, the interactive process of engagement through the four language skills - speaking, writing, reading, and listening - is critical for scaffolding learning to provide a successful collaborative environment for knowledge construction.

Data and Methodology

Ethnographically Approached Case Studies

This study can be described as case studies approached ethnographically in order to understand the work of the writing center. According to Stake (1995), case study is defined as “the study of the particularity and complexity of a single case, coming to understand its activity within important circumstances” (p.xi). He claimed that case study research is determined not by the methods of inquiry used, but by interest in each case observed. Gall et al. (2003) characterized a case study as “the in-depth study of instances of phenomenon in its natural context and from the perspective of the participants involved in the phenomenon” (p.436). With the particular interest of the multiple instructional activities in the writing center as cases to study, this study was conducted following the ethnographic approach.

Ethnography is the study of human, human behavior, and activity in the specific cultures. Malinowski (1922) highlighted the significance of participated observation to understand the life of the natives and established the concept of fieldwork in ethnography while interacting with them. Geertz (1973) introduced the widely known concept of *thick description* to provide the ethnographic findings. Spradley (1980) explained ethnography as “the work of describing a culture” (p.3). Along with the turn of social constructionism in the field of language education, the interest of ethnographic studies has been increased and suggested for its naturalistic methodologies (Bishop, 1999). Babcock and Thonus (2018) described ethnography as “a broad category of research typically involving participant observation or immersion”(p 52), introducing ethnography by quoting Emerson et al. (2007) for “establishing a place in some natural setting on a relatively long-term basis in order to investigate, experience and represent the social life and social processes that occur in that setting” (p. 52).

The Setting and Context

This study was conducted for my fieldwork in the writing center located in a major Midwestern university in the US. The university had a population of 55,000 undergraduate and graduate students on its main campus. The number of the tutors in the writing center, including graduate and undergraduate tutors, was 25. Their academic majors were diverse, and all were native English speakers.

The client population of the writing center was roughly a 50/50 ratio of English native speakers to non-native speakers. The native country of the non-native English speakers varied from East Asia, Africa, South America, and Europe. In order to understand the complexity of the work of the writing center, I attended the multiple instructional events in the writing center, e.g., writing tutorials, staff meetings, tutor training course, and orientation program as a participant observer for 12 months.

Among the data I collected during my fieldwork, I will introduce the mock tutorials performed by the tutors during the tutor orientation program as cases to look into in detail, along with the ethnographic data from my field notes that captured the comments and discussion during the events and the interviews with the tutors.

During the mock tutorial, provided as part of the tutor training orientation, the experienced tutors demonstrated a writing tutorial with a troubled tutee and discussed the issues and problems presented. Then, the experienced tutor and the new tutor paired up and worked with each other on a short paper distributed (anonymous tutee’s writing). They took turns as a tutor and a tutee, and shared their thoughts about the work of the tutorial. The mock tutorials were videotaped with the consent of the tutors and IRB permission and transcribed following the convention of transcript notation (Sacks, et al., 1974) for the fine-grained, turn-by-turn analysis. (Appendix A. Transcript Notations) Informal interviews

with the tutors were conducted over time during my fieldwork about the questions listed in Appendix B. They were audiotaped, logged, and identified by the themes related to the study's research questions and gathered for analysis.

Conversation Analysis as an Analytical Framework

Conversation Analysis (CA) was employed as an analytical framework. CA focuses on the "interactional organization of the social activities" (Hutchby & Wooffitt, 2008, p.12) and describes the structure of the interactional organization, moment-by-moment, turn by turn talk-in-interactions. It is a systematic analysis of naturally occurring everyday human activities.

CA describes organizational structure such as turn taking, sequence organization, and repair practices (Goodwin, 1981; Sacks et al., 1974). Turn taking is controlled interactionally and joined collaboratively in the sequence of the prior and the next turn, i.e., each turn provides a context for the next turn and each next turn shows the speaker's understanding of the prior turn (Moreman & Sacks, 1988). In this regard, *adjacency pair* is the basic unit of the organization in conversation: first pair part (FPP) and second pair part (SPP). At the end of each possible turn constructional unit (TCU) in the FPP, a transition relevance place (TRP) becomes available for the next turn in the SPP (Sacks et al., 1974). CA examines a speaker's social actions through talk and the mutual understanding (intersubjectivity) that are witness-ably observable in

their management of the interactional context. In terms of analyzing talk through CA, the key question is *how*, and no contextual factors (e.g. race, gender, etc.) or predetermined coding categories are allowed for its account of intersubjectivity. Intersubjectivity is described strictly by the interactional sequences of the participants; the relation between the researcher and the participants is completely observational (Thonus, 2020, p. 180).

However, concerning the ethnographic data in CA combined with ethnography, Waring et.al. (2012) summarized the potential benefits of utilizing the talk-extrinsic data in four ways: confirm, specify, disambiguate, and correct the vague parts from an initial CA analysis by providing the questions of *what* and *why* through the informal ethnographic interview with participants.

Ethnographic information in a CA study enables "systematic and rigorous attention to the fullness of the participants' spoken sociality and its generic structuring" (Maynard, 2003, p.70). The description of the setting, participant's identity, and institutional history provide contextual knowledge to the researcher and the study. It can clarify the ambiguous puzzling patterns of conduct and serve as evidence for claims about discourse (Pomerantz, 2005). This study presents an ethnographic description of the instructional sites of the writing center and the new scheme of writing instruction that the center pursues: writing as a collaborative process.

Mock Tutorial Training

In this section, I will introduce the opening sequences and the sequences from the main work of the mock tutorials, which were demonstrated by the tutors for cases with a troubled tutee and with an ideal tutee. First, I will introduce the opening sequences with both the troubled tutee and the ideal tutee. Then the sequences from the main work with both the troubled and the ideal tutees will follow. The case with a troubled tutee was demonstrated first to the whole group of the tutors and the cases with an ideal tutee were demonstrated later. The names of the tutors used in this paper are all pseudonyms (T: Tutor, C: Client).

Showing What We Do: Opening the Tutorial

The opening stage for a writing tutorial is important in terms of establishing the direction of the work of the tutorial. The tutor and the tutee greet each other and find out what to work on during the tutorial. Depending on the tutee's knowledge and experience about the work of the writing center, they can either move on to the work of the writing smoothly, or they may require preparatory instruction first that introduces and explains what can be accepted as work for the tutorial before moving to work on their paper (J. Kim, 2018b). If the tutee makes a request that cannot be accepted as work of the writing center, such as proofreading, then they have to negotiate first what to work with before moving on so that they do not violate the center's policy (J. Kim, 2018b).

Opening Sequence with a Troubled Tutee

Selma and Helen, the two experienced tutors, mock a tutorial of the case with a troubled tutee. Selma plays the role of the tutor and Helen plays the role of the troubled tutee, who is not ready to work with the tutor. After greeting each other, the tutor and the tutee begin discussing how to work on the paper. T in the transcript signifies the tutor, Selma, and C, the client (tutee), Helen. The names used here are pseudonyms.

Excerpt 1.

- 1 T: Hi. Are you Helen?
- 2 C: U-huh
- 3 T: Hi I am Selma
- 4 C: = [Hi
- 5 T: = [It's good to meet you
- 6 I'm going to be your tutor today
- 7 So I am ready to get started when you are
- 8 C: Okay(.) Alright
- 9 T: Come on in ((T and C, sitting around the desk))
- 10 ► So (.) so what are you- what are you working on today?
- 11 C: Um it's just an assignment(.) its- it's for my class
- 12 ► It's- my teacher told me to come
- 13 And so I just- um: I am but I have to work so
- 14 I'm going to have to leave just like a little bit early
- 15 And then I have to hand it today(.) So
- 16 T: Okay
- 17 C: =Um(.) just(.) you know(.) if you can just tell me
- 18 what I need to do to fix it (.) um that would be great

The tutor and the tutee greet each other in lines 1-5. The tutor, Selma, makes sure of the tutee, Helen, and then introduces herself. The tutee, Helen, simply accepts who she is in line 2 and says “Hi” simultaneously with the tutor, Selma, in line 5. Selma continues introducing herself as a tutor to work with for the tutorial today. Then she leads Helen to the chair to sit down at the desk. The tutor takes the lead, and the tutee follows, sitting with the tutor.

Selma then asks the routine, opening question in line 10, “What are you working on today?” This is the typical opening question that the tutor asks in the beginning of the tutorial, and it is important to establish the agenda of the work for the tutorial. The tutee, Helen provides her *why I am here* in lines 11-15. Helen begins by introducing her work as an “assignment” for “my class”(line 11) without specifying what kind of assignment or for what class. Then she continues saying that her teacher told her to come to the writing center (line 12) and that she came to the writing center not because of her own volition but because she was told to come. Helen continues saying that she has to work at her job, so she is going to have to leave early (lines 13-14) and that she has to submit the paper today (line 15). Without providing any specific information about the assignment or the class of the paper, Helen says that she has to leave early and she has to submit the paper that day. The tutor, Selma, marks receipt by latch in line 16, and Helen finally formulates her request about what she wants from this tutorial in

lines 17-18, *if you tell me what to fix, that would be great.*

The request that Helen made in lines 17-18 is the compilation of all the problems that the tutor shared during the interview, which makes the tutor frustrated. The tutee never provided any specific information about the assignment, class, comments from the instructor, and besides she has to leave early and has to submit the paper that day. So, what she wants from the tutor was simply, *You tell me what to fix (then, I will take them)*, the request of proofreading, which is not accepted as work of tutorial in the writing center. The problem of this request is that the work to be done for the tutee’s paper was tossed to the tutor. What the tutee is going to do is just to wait for the tutor to finish the work so she can submit it as quickly as possible. The nature of the tutee’s formulation of what she wants is basically making the tutor work for the tutee’s paper, and this is why many tutors and the writing center declare this proofreading request as cheating (J. Kim, 2018b, 2022). As it was developed from line 11 to line 15, the proofreading request does not come solely by itself, the request of *You do the work (proofread), and I will wait and take it* comes with many more additional problematic issues, such as a lack of information about the assignment, which oftentimes comes from a lack of understanding of the assignment; being required to visit the writing center, which means that they were forced to visit; no time for working or revising the paper, etc. All the issues described show that this tutee is not willing or prepared at all to

work for her paper with the tutor during the tutorial. Helen made this problematic request, formulated by a troubled tutee, so clearly and vividly in this opening sequence.

One of the significant pedagogical philosophies that the writing center follows is the non-directive approach that goes with the student-centered, process-oriented approach. The tutor in the writing center is not there to fix the tutee's paper; the tutee has to bring their own concerns and problems of what to work on during the tutorial, and the tutor helps them to solve the problems they bring through the conversation. This means, the role of the tutor is not to tell the tutee what to fix. The tutee brings the problems and fixes them as well. They are expected to do both sides of the work. The tutor is there to *help* the tutee to solve their own problems in their writing. However, oftentimes, the first-time visiting tutee or the tutees who come to the writing center for class requirements do not know what to ask for or what to do for the tutorial (J. Kim, 2018a, 2018b). Asking the tutor to tell what to fix for the tutee's paper shows a complete misunderstanding about the work of the tutorial in terms of what the tutee is expected to do for the work of the tutorial. What Helen demonstrated here exhibits most of the critical issues that the unprepared tutee brings to the work of the tutorial.

Opening Sequence with an Ideal Tutee

The next excerpt is an opening sequence of a mock tutorial demonstrating the case with an ideal tutee. Reyna, an experienced tutor who has been tutoring for three years, plays a role of the ideal tutee. Brian, a newly hired undergraduate tutor plays a tutor in this excerpt. Reyna plays the role of a well-prepared, ideal type of tutee for the work of the tutorial.

Excerpt 2.

- 1 T: Hello How's it going? ((shaking hands))
- 2 C: It goes well=How are you?
- 3 T: Good (.) I am Brian(.) //Nice to meet you.
- 4 C: //Hi Brian I am Reyna.
- 5 T: Hi(.) would you like to sit down?
- 6 C: =Thanks ((T and C, sitting at the desk))
- 7 T: So(.5) how's your day been?
- 8 C: It's been okay
- 9 T: Good good
- 10 C: It could be (.) way better (.2)
- 11 if this paper was:: better (.2) done ((giggling))
- 12 T: =Yea I know the feeling(.) I know the feeling
- 13 It's that time of the year(.) Things are coming up
- 14 C: =Yes they are
- 15 T: =Due dates are coming
- 16 ► So (.) what do you have here?
- 17 ► C: I have a paper here(2.) that explains or at least is a discussion of
- 18 ► how Beowulf is supposed to be the model(.) of a traditional folk hero
- 19 T: ((nodding))

- 20 ► C: Um: It's- it's an analysis paper in terms of (.) the poem
and
21 ► I'm supposed to go ahead and take various portions of
that
22 ► to support (.) whatever I am arguing in here

The tutor greets the tutee, and they introduce themselves in lines 1-4. The tutor, Brian, greets Reyna and Reyna responds to him, "How are you?" in line 2. Brian responds to Reyna then introduces himself. As soon as he introduces himself, Reyna introduces herself by saying "Hi, Brian. I am Reyna," in line 4, overlapping with the following, "Nice to meet you," by Brian. Each of their turns of greeting and introducing themselves were offered turn by turn, with no pause or hesitation. Both willingly and skillfully welcome each other.

In lines 5-6, Brian offers her to take a seat and Reyna thanks him. Both now are sitting at the desk. Brian initiates small chit-chat for breaking the ice in line 7, Reyna responds quickly. Brian marks receipt, "Good, good" in line 9. After greeting and small chitchatting, Reyna is mentioning the paper first with giggling in lines 10-11, which shows that she will now begin talking about the paper for a mock tutorial. Brian responds quickly with agreement in lines 12-13 and 15. Reyna shows the immediate agreement to Brian as well in line 14. By agreeing with each other, both move toward talking about the paper (lines 10-15) and now are ready. In line 16,

Brian asks the question of *why you are here* to Reyna, "So(.) what do you have here?" This is the routine, opening question that the tutor asks the tutee, *why you are here*, which is asking about how the tutee wants to be helped during the tutorial. This is an important question, which sets up what to work with for the work of the tutorial. The response that the tutee provides for this question, which is critical to establish the agenda for the following course of action for the tutorial, reveals the tutee's knowledge and experience of the work of the writing center.

Reyna, to this question of asking *why you are here*, now begins formulating her why I'm here in lines 17-18 and 20-22. Based on the piece of prepared writing (presumably for the tutee's paper) earlier they received, Reyna first introduces her assignment in lines 17-18, specifically the topic of her paper, "how Beowulf is supposed to be the model of a traditional folk hero". The tutor nods for receipt (line 19). Reyna then explains the genre of the paper, "analysis paper" in line 20, and explains what she is supposed to write for the paper in lines 21-22. Reyna provides the basic overview about the paper she brought. She shows that she has a clear understanding about the assignment ("analysis paper"), knows what has been written so far (the topic and the content), and what to do further to complete this assignment (take various portions of the poem to support her claim). By doing so, she clearly shows her expertise of what is expected for a tutee for the work of the writing tutorial.

Since this is a mock tutorial, the assignment is not real, and she does not have her own paper or an argument. Reyna quickly improvises what she will need to do for the assignment. However, her improvised introduction about her assignment is clear and specific in her understanding of what to do about the topic and the form of writing. What Reyna displays here in this excerpt is that she has a clear understanding about her assignment and what she needs to do for the assignment. In this way, Reyna, the experienced tutor plays a role of an ideal tutee who knows what to do for the work of the tutorial. She is leading the direction of the work of the tutorial now.

Showing What We Do: Getting to Work of the Tutorial

Once the tutor and the tutee introduce the assignment and set up the agenda for the work of the tutorial, they begin working on the paper. Either the tutor reads the paper quickly in silence, or one of them reads the paper aloud line by line. Either way, both the tutor and the tutee read the paper and begin identifying the problems to work with for the work of the tutorial. Ideally, the tutee is expected to find a problem to work with; however, if the tutee does not show the initiation, the tutor takes the role to find a problem to work with for the tutorial.

Sequences from the Main Work With a Troubled Tutee

This is a sequence from the main work of the mock tutorial demonstrated as one with a troubled tutee. The two experienced

tutors, Selma and Helen, who were introduced earlier in the opening sequence with a troubled tutee, played here the roles of a tutor and a troubled tutee, respectively. This is a sequence from the following part of the same mock tutorial of Excerpt 1. The tutor, Selma, reads the paper distributed, which was prepared for the mock tutorial and identifies the problems to work with for the tutorial. Helen who plays the role of a troubled tutee does not show any meaningful engagement in the work of problem-solving.

Excerpt 3.

- 85 ((T and C read the paper distributed for the mock tutorial))
- 86 ► T: Um(.) I have some questions about(.) some of your decisions (2.) (h)(h)
- 87 ► Um(.2) particularly about (.) word choice?
- 88 ► Do you think (.) kind of as we read as we re- as we read it out loud
- 89 ► Did anything(.2) kind of jump out to you?
- 90 C: ((avoiding eye contact with the tutor)) Well, I did=say
- 91 *(that it was black and white like twice)*
- 92 T: =Yea, yea I think that's good
- 93 ► There are just a couple of things that seemed a little bit redundant(.)
- 94 Um and yea I think right in here
- 95 I think we talk about it being (.) the black and white photo (.)
- 96 ► And I think that it happens again(.)There's another part down here (.2)
- 97 ► Um that that seemed like a little bit redundant to me as well(.) here

- 98 ► =*And I can't actually find it*
- 99 ► So (.) um(.) and I think that's something you want to think about
- 100 ► just a few parts where you may be repetitive or-
- 101 ► C: =Okay you can write that down if you want to
- 102 ((chewing gum and stroking her hair))
- 103 T: =U::m I feel- I don't know(.) ((Some of the audience laughing))
- 104 you can- you can take some notes (.) or (.)
- 105 if you think you'd remember it (.) I think that works out too (.)
- 106 so= whatever you wanna do?
- 107 C: Well(.) I'll start writing ((Audience laughing))
- 108 T: =Okay

After reading the paragraph from the paper distributed, the tutor, Selma points out some of the tutee's decisions about word choice and she asks what the tutee thinks (lines 86-89). The tutor points out a problem to work with for the tutorial and invites the tutee to engage to the work of problem solving. Helen, playing as a troubled tutee, avoids eye contact with the tutor who tries to invite the tutee to engage the work for the tutorial. She answers in line 91, "black and white," which was the repeated phrase in the paper. Helen here seems to provide the right answer to what Selma pointed out. Her answer in line 91 was soft and quick, which was difficult to hear for the audience. As an experienced tutor herself as well, Helen seems to be engaged automatically by providing the answer to Selma without thinking much of improvising the

troubled behavior for this moment. So, she answered quickly in a low soft tone, which is to show her intentional insincerity and careless attitude to the work of the tutorial.

The tutor, Selma agrees with Helen with a compliment (line 92) and continues to identify more of the problems that show redundancy in lines 92-98. Selma looks for another example for redundancy that she believes there was (lines 93-97), but fails to find the example, as she states quickly in a low soft tone that she can't find it (line 98). So instead of finding more problems for the work, Selma invites Helen to find a problem she thinks to work with, maybe about repetition or something else (lines 99-100). Helen sees what Selma is doing to invite her to engage to the work, so she takes the turn by latch without pause. Along with distracting behaviors like chewing gum and stroking her hair, Helen brings up another problematic issue that the troubled tutee shows during tutorial by saying, "You can write that down if you want" (line 101). What Helen said here is another version of saying, *You do the work for my paper (I won't do it!)*, which is a request of cheating that is against the center's policy. All in the audience – new and old tutors – are watching this demonstration silently.

Selma, who is playing the tutor, takes her turn quickly in line 103, but her response was delayed with hesitation, "U::m", moderate rejecting, "I feel- I don't know(.)" in line 103. Some in the audience are laughing at this moment. They all understand this

awkward moment for the request made by the troubled tutee as unacceptable; but, as tutors who want to help the tutee genuinely, they feel uncomfortable to reject directly to the tutee's request, despite the fact that this is an unacceptable request. Instead of a direct rejection, Selma makes the suggestions that either the tutee can take notes, or she can remember it instead of taking notes in lines 104-105. With the suggestion, the tutor tosses the work for the paper back to Helen in line 106. Selma, the tutor gives her opinion about the work of the tutorial as a suggestion. She never gives away directly what to do to the tutee. All of her opinions about the paper were given as a suggestive form with the following question to make sure of the tutee's idea about her suggestion. This is how the tutor invites the tutee to be engaged in the work in each and every turn for the tutee to do the work of the tutorial. In line 107, Helen, the troubled tutee, finally agrees to write it down. All in the audience are laughing at this moment, which shows that they are happy now as the problem was solved – inviting the troubled tutee to be engaged in the work of writing – at least with this issue. Selma marks receipt immediately by latch with agreement in line 108.

This is a mock tutorial that was improvised instantly during the tutor training orientation with papers distributed just right before this mock tutorial. Selma and Helen demonstrated one of the problematic situations that the tutor can encounter during the tutorial, which is, *You (the tutor) do the work and I (the tutee) will wait*

for you to work on my paper. This is one of the routine problems that the tutor encounters in the everyday tutoring experience, particularly with the first-time visiting tutees (J. Kim, 2018a, 2018b). The philosophy of the writing center is student-centered, non-directive, process-oriented instruction. What the tutor does is to assist the tutee's work of writing, not to do the tutee's work. However, many times, this fundamental instructive approach is mistaken by the tutee, especially the first-time visiting tutees or L2¹ tutees who never experienced the writing center previously. The other issues that Helen demonstrated are closely tied to the misperception that some of the troubled tutees bring to the writing center, which is avoiding eye contact, not concentrating on the work of the tutorial, and being distracted by chewing gum and stroking their hair, being distracted by the cell phone, etc. All of these issues demonstrated by Helen and Selma represent the challenges that the tutors may encounter in their tutoring with the unprepared tutees who have lack of understanding of the work of the writing center (J. Kim, 2014).

Sequences from the Main Work with an Ideal Tutee

The next excerpt is a sequence from the main work of the mock tutorial demonstrated as one with an ideal tutee. This sequence is from the following part of the same tutorial that was introduced in

¹ L2: second or foreign language, L1: first or native language

Excerpt 2. Brian, playing a tutor in this excerpt asks what problem the tutee wants to work with for the work of the tutorial. Reyna, who plays an ideal tutee, identifies the problem to work with for the tutorial and provides how to solve the problem.

Excerpt 4.

70 T: Well I mean: outside of this
 71 C: =Okay
 72 ► T: Is there a specific point (.) u::h specific theme that you're
 73 ► trying to get across to your readers?= Uh::
 74 C: Well I guess according: to the prompt
 75 I will probably nee::d to talk about epic hero or
 76 T: =Okay ((T takes a note what C says))
 77 C: What an epic hero(.2) is
 78 T: =Okay ((T takes a note what C says))
 79 ► And in your opinion (.) what is an epic hero?
 80 C: Uh um (3.9) I guess =I probably should go
 81 and take a look at my notes(.) because how I feel about
 82 what an epic hero is ma:y or may not necessarily
 83 be what my teacher's=expecting?
 84 T: Hm: hm: Yes= but I think what your teacher is asking
 85 C: =Hm hm
 86 T: is you know (.2) sort of you know(.2) hm- she is here
 87 specifically asking for your ideas //about this
 88 C: //Yeah
 89 ► T: So I mean so (.) what (.) are your idea about a:
 90 C: Well (.7) No I- (1.5) to support my ideas- my ideas
 91 about him being (.8) how he fits the model of epic hero
 92 T: Hm
 93 ► C: So I guess I probably need to define traditional epic hero
 first

94 T: (.8) True
 95 C: At least according to probably find out so
 96 ► So=I need to go back to my notes
 97 T: =Yes
 98 C: =Um (3.0) ((C, taking a note on the paper)) to redefine
 (.5) this
 99 T: hm hm
 100 ► C: And then I guess(.) something about my ideas about
 Beowulf

Brian, the tutor, asks the tutee if there is any specific theme that the tutee wants to talk about in the paper (lines 72-73). The tutor is trying to find out what to focus on, which problems or concerns that they can discuss for the work of the tutorial. Instead of him, identifying the problem or direction for this work of the tutorial, the tutor invites the tutee to talk about it.

Reyna, the tutee, now begins improvising what to answer about the paper for this mock tutorial. She begins talking about the prompt of the article, which is about the "epic hero" she received for this tutorial (lines 74-75, 77). The tutor, Brian responds immediately by latch and takes notes of what she says in lines 76 and 78. Then, Brian asks Reyna a more specific question, "in your opinion, what is an epic hero?" (line 79). Brian, the tutor makes his question more about what the tutee thinks about an "epic hero" in order to bring out more of the tutee's personal thought about the topic so that the tutee can engage more to the work of her writing.

Tutee's answer to the tutor's question becomes the resource for the actual writing after the tutorial.

Reyna, in line 80, takes a 3.9-second pause then answers that she will need to look at her notes to find out if her thought about epic hero is what the teacher expects from this paper. As this is a mock tutorial, the piece of writing they read was not written by Reyna and she obviously does not have her notes for this writing prompt for this class, either. Everything Reyna and Brian say is improvised instantly with the piece of writing as a tutor and a tutee for this mock tutorial. What Reyna mentions here to the tutor's question is "her notes" and her "teacher's expectation" she needs to make sure first, which is always used for guidance for any writing assignment when the tutor gives advice to the tutees. They need a good understanding of what the teacher expects from the assignment and what they learned in class based on their notes. This is what Reyna highlights by mentioning the two issues.

Brian, the tutor, for a response reminds Reyna of what the teacher expects in this assignment and makes sure that the teacher is specifically asking for the student's ideas about an "epic hero" (in lines 84, 86). He re-casts his previous question (line 79), "what(.) are your idea about a: [epic hero]" one more time (line 89). Reyna marks receipt immediately in line 85 to Brian, mentioning what the teacher is asking. Just right after he mentions "specifically asking for your ideas" (line 87), Reyna overlaps him with "Yeah" for agreement

(line 88). She also sees at what Brian points. Reyna now plans out her thoughts about this assignment; in order to support her ideas about the topic (lines 90-91), she needs to "define traditional epic hero first (line 93)"; to do so, she needs to go back to her notes (lines 95-96). Then, she takes 3 seconds here to think about and take notes for herself as well; in order to redefine it, she will need to have some of her own thoughts about Beowulf (lines 98, 100). The tutor, Brian, marks receipt in lines 92, 94, 97, and 99.

What Reyna mocks here as an ideal tutee is showing her understanding about what to do for this assignment. Checking notes and finding out what the teacher expects in this assignment is the first task for the tutee to do to work for their assignment. So, she shows her understanding about what should be done first. The problem they are working with in this excerpt is what the main theme (topic) of her assignment is and what to provide to support the main theme. To the tutor's question of asking if Reyna has a "specific point or theme" for this assignment (lines 72-73), Reyna, with no hesitation, goes ahead saying her theme and what to do for it, which is taking her notes and teacher's expectation for this assignment. To another question from the tutor asking her own idea about the topic, she quickly plans what she needs to do step by step by improvising as an experienced tutor who tutored this kind of writing assignment so many times. What she reveals here as an ideal tutee is that the tutee herself has a clear understanding of this

assignment and has a plan of what to discuss for her writing step by step in detail, which reveals that she has full authorship for her own writing. To the inviting questions about the topic and her ideas about it that Brian asked, the tutee, Reyna, provided the complete plan of what to do for this assignment, step by step, as an independent writer. What Reyna mocks here is how an ideal tutee who is prepared for the work of the writing tutorial behaves. What the tutee and the tutor discuss during the tutorial will be the resource for the tutee's actual work of writing for the assignment after the tutorial.

As shown, the ways that the troubled tutee and the ideal tutee worked with the tutors during the mock tutorials are completely different. The ideal tutee knows clearly what to do for the work of the tutorial and how to work with the tutor to be helped. The agenda for the tutorial – curriculum for the tutorial – is introduced, defined, and explained by the tutee and the specific work to do for the tutorial is also settled, not by the tutor, but by the tutee. The tutee initiated the first turn for pointing out the problems for the work of the tutorial and provided the effort to solve the problems in the second turn. The ideal tutee did all the work independently and engaged the work of problem solving with the tutor. However, the troubled tutee rendered both the work of the problem pointing and the problem solving for the work of tutorial to the tutor. The troubled tutee was waiting for the tutor to find a problem (first

turn) and solve the problem (second turn). The tutee did not show any engagement to the work of the tutorial. During the mock tutorials in the tutor training orientation, the experienced tutors demonstrated the differences between those tutees and showed how to work with them in their everyday work of tutorials in the writing center.

Findings

During the mock tutorials in the tutor orientation, the tutors presented the two contrasting cases: a collaboratively interactive case with a well-prepared tutee and a least interactive case with a troubled tutee. The well-prepared tutee was showing the tutee's expertise and ownership as an independent writer who actively initiated the work to solve the problems she brought with her paper. The troubled tutee was showing the least engagement in the work of problem solving and not initiating any work or providing any responses to the tutor's initiative questions. The differences between the ideal and the troubled tutees were contrasted in both of their work of the opening sequences and the sequences from the major work of the tutorials in their talk-in-interactions during the mock tutorials.

When It Works

As introduced in the mock tutorial with the ideal tutee, in order for a successful collaborative instruction, a tutee's engagement should always precede the tutor's suggestion for the problem. This

means, instructing the students to be able to perform the expected role as a tutee is the first task to accomplish for collaborative work for the tutorial (J. Kim, 2018b, 2018c). Instructing the tutees what is expected for them to do for the writing tutorial, i.e., what is the goal they share to pursue in the tutorial and what are their roles for the tutorial, is the preliminary condition for the successful collaborative work for the tutorial (Harris, 1986, 1992; Henning, 2001; J. Kim, 2018b; Lunsford, 1991; Porter, 1991).

Once the tutee is engaged in the work of the tutorial to solve the problems identified, the tutor offers suggestions for correction and explanations about the problems. The instruction begins from that moment. If the tutee agrees with the tutor's suggestions for correction or revision, the problem is solved. The sequence for the problem is complete. They can move on to the next problem to work. But if the tutee doesn't agree with the tutor's suggestions, then they go back to the turn for problem pointing in the first turn. The tutee (if not, the tutor) can revise the question and reformulate the problem. The sequence to solve the problem recurs (Figure 1).

Figure 1.

The Recurring Sequence of the Organization of the Talk in Tutorial

Turn	Tutor/Tutee	Description
1st	Ideally, Tutee	problem-pointing
2nd	Ideally, Tutee	problem-solving
3rd	Tutor	explanation and/or suggestions for the problem <ul style="list-style-type: none"> • Instruction begins
4th	Tutee	agreeing to the tutor's suggestions (problem-solved) <ul style="list-style-type: none"> • The sequence of the problem initiated in the 1st turn is complete.
However, if the tutee does NOT agree to the tutor's suggestions:		
1st	Ideally, Tutee	going back to the original problem <ul style="list-style-type: none"> • The sequence of the problem initiated in the 1st turn earlier hasn't been completed. So it is continued in the embedded sequence for the original problem.

However, if the tutee does not engage in the work of the tutorial anywhere either in problem pointing or problem solving as in the mock tutorial with the troubled tutee, the work for the problem pointing and the problem solving becomes solely a work for the tutor, which means, all the turns for the work of the tutorial fall on the tutor and this situation puts the tutor in the place of doing all the work for the tutorial by themselves (J. Kim, 2018c). This is when and where the tension and conflict begin between the tutor and the tutee during the tutorial.

One of the frustrating moments that the tutor, Sydney (graduate student, 3 years of tutoring experience) expressed during interview was about the tutees who come to the writing center seemingly with no motivation or interest of how to develop ideas for the paper:

This client, I just have never met any client who doesn't have any drive at all. She was applying for some type of program...well, she was like 'I came here on scholarship.' 'Okay, would you like to share any of your stories or experiences you accomplished (...)?' All her answers were just simple no (...) It was so difficult because she came back every week with an excuse. She never did anything. (Sydney, graduate student, 3 years of tutoring experience)

Particularly, those who come to the center just to fix the errors at the last minute before submitting the paper are those who make the tutor frustrated the most. Another tutor, Nora (graduate student, 2 years of tutoring experience) said:

One of the most difficult things is when someone comes in and shoves the paper in my face, and says 'here, proofread this,' um, and so I have to tie them in, you know, what we do and what we don't, um...and sometimes the sessions that we have when I have to make that known are difficult sessions because the client has a certain expectation whereas the tutor is bound by certain policies. (Nora, graduate student, 2 years of tutoring experience)

When the tutee comes with no drive and tries not to work for anything but just expects the tutor to fix the paper, the tutor has the burden to do all the work of the tutorial in order to move on.

When It Fails

As shown in the mock tutorial with the troubled tutee, when all the negotiation for collaborative work collapses and all the effort for engagement fails, what can they do to continue the work of the tutorial? Two options are available: Stay with the non-directive approach and do not provide what the tutee wants for free such as proofreading, or just provide what the tutee wants at any cost. Although staying with the non-directive approach sounds desirable, it is not always plausible because in order to make the tutorial work, the tutee's engagement is required regardless. Without the tutee's engagement, i.e., without the tutee's initiative for inquiry or response for the collaborative next move, the tutor's instruction for the work of writing cannot be started or continued. The tutors shared thoughts about the difficult tutees who are not willing to engage to the work of the tutorial and how to deal with them for the work of the tutorial:

(...) most frustrating is, like this dependency upon the tutors where clients expect more than the center is supposed to be giving (...) sometimes that causes them to manipulate the system and, um, you know, that's really aggravating. (Ava, graduate student, 2 years of tutoring experience)

What Ava (graduate student, 2 years of tutoring experience) expressed here is just how the troubled tutee behaved in the mock tutorial. Instead of engaging to the work of the tutorial, Helen (the troubled tutee's role) had Selma (the tutor's role) do all the work for her paper. Cynthia (graduate student, 2 years of tutoring experience) during the interview shared her thoughts and how she works with them:

If it is a first- or second-time visitor, I don't give them what they want. I want them to think about all the issues and patterns of their writing in their organization of the paper. But if they have been working several times back and forth and visiting the center with the same paper, I do check their grammar as a reward. But for the visitor who comes at the last moment before the due date, I don't give them what they want (...) I wanna say to them in this way. They can't get what they want unless they follow my rules [policy of the writing center]. If they want to get what they want, they have to play by my rules. (Cynthia, graduate student, 3 years of tutoring experience)

As Ava and Cynthia stated, in order for the tutor to be able to help with what the tutee needs for their writings, the tutee needs to work with the tutor to solve the problems for the work of writing. The tutee's initiative for engagement for the work of problem solving is inevitable.

Hence, when the negotiation for collaborative work fails and the tutee doesn't engage to the work of the tutorial, the burden to work in the tutorial falls on the tutor. If the tutor leads the work of the tutorial by giving what the tutee wants, *proofreading*, in this case, it becomes a tutor-centered, directive instruction that violates the center's pedagogical philosophy, rather than a student-centered, non-directive instruction (, which happens quite often during the actual tutorials in the writing center). Unless the tutee does his/her own job as an initiator to solve their own problems, what the tutor can help for the problems of their writings is minimal. This is the why and how the tutor sometimes falls into the proofreading trap (Cogie, et al. 1998; Mozafari, 2015; Myers, 2003; Young, 1998) and gives what the tutee wants against their volitions – cleaning the mechanical errors from the paper without any of the tutee's engagement to the work of the tutorial. The tutor follows the tutee's request for proofreading without any alternative options that may prevent them from leaving with disappointment and sometimes even resentment. This is the dilemma that the tutors encounter in the work with first-time visiting tutees who do not have an understanding of the writing center's policy and the pedagogical philosophy.

Discussion and Conclusion

What the tutors demonstrated during the mock tutorials, particularly how the ideal tutee works with the tutor, is very similar

with what Brook (1991) claimed in his article, "Minimalist Tutoring," which is about making the student do all the work. The troubled tutee did not show any interest in doing the work of her writing; instead, she was making the tutor do all the work for her writing and just waited for it to be done. In contrast, the ideal tutee did most of the work for her writing during the mock tutorial. The ideal tutee identified the problem and suggested how to solve the problem in terms of what she needs to do to revise her own writing. The contrast between the troubled and the ideal tutee of the mock tutorials is incompatible; however, what they demonstrated reveals the core of the writing center's student-centered pedagogy, which is epitomized by North (1984)'s famous quote, "writing center is to produce better writers, not better writing" (p.438).

Writing tutorials have no established curriculum until the tutee introduces their work and expresses the concerns about their writings. Thus, the tutor has no way to know what to work with until the tutee comes and asks for specific help for their writings. Once the tutee introduces how they want to be helped, the curriculum of what to do for the work of tutorial becomes clear. Therefore the negotiation for setting the agenda in the beginning of the writing tutorial is significant for the work of writing. (Harris, 1986; J. Kim, 2018b; Newkirk, 1989; Mackiewicz & Thompson, 2015). If the request for help for the tutorial agrees with the center's policy, they can get to the work for the tutorial. Ideally, in this respect, the

tutee must bring their concerns about writing to work with and share their thoughts about how to solve the problems for their writings. Then the tutor can provide feedback or suggestions to help them to solve their concerns for their writings. However, oftentimes, many of the first-time visiting tutees are not prepared to work with the tutor as they are expected for the collaborative work of the tutorial. Except for those experienced tutees, returning tutees in many cases, the tutor has to instruct the tutee what can be accepted for the work of tutorial and how they are expected to work with the tutor beforehand in order to get to work with their writings during tutorials (J. Kim, 2018b).

In this respect, mock tutorials in the tutor-training orientation function as a good resource for instruction for both the new and the old hand tutors (Archer, 1996; Griggs, 2012; Hall, 2017; Kohn, 2014; Komara, 2006). Archer (1996) and Komara (2006) suggested that the mock tutorial is beneficial for training, assessing, and evaluating the tutors by demonstrating the tutorial practice and discussing the issues they observed in a way that is less invasive than direct observation. Komara (2006) described the detailed guidelines of how to use mock tutorials for training tutors. Griggs (2012) and Kohn (2014) also introduced the mock tutorials for tutor-training program, not performed by the tutors themselves, but by the director of the writing center with their own writings as a client (Griggs, 2012). Kohn (2014) suggested staffing the local science

faculty for training tutors in science writing through genre-based WAC (Writing Across the Curriculum)-WID (Writing In the Disciplines) research. Based on the benefits of mock tutorials and participant observations from the studies, Hall (2017) created the video case discussion assignment for the tutors to video their own consultations, select the segments to discuss together in groups, and present them in seminar for tutor education.

By showing what we do through the mock tutorial, it serves as a pre-service, tutor-training instruction for the new tutors and at the same time for the old hand tutors, it functions as an in-service training. Through this tutor-training orientation with mock tutorials, the writing center instructs themselves and others who we are and what we do as a tutor in the writing center. By sharing their thoughts and ideas about how to instruct writing and demonstrating what they do during tutorial, the tutors learn to become a member of the writing center community and develop the collective identity as a tutor who shares the institutional history of the writing center. This is the instructional site of their academic socialization as a tutor in the contemporary writing center.

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Appendix A Transcript Notations

- (.) micro pause
- (2.0) Timed silence within or between adjacent utterances
- // Notes the point at which one speaker overlaps another.
- = Notes the ending of one utterance and the beginning of a next without gap or overlap.
- _ Underlining indicates stress
- (.h) Indicates an in-breath
- (h) Indicates out breath
- Hyphens indicate a word cut off in its production
- * * Notes soft speaking
- : A colon indicates a sound stretch on a word or word portion
- () Empty indicates an unheard utterance
- (()) Double parentheses contain descriptions of the scene
- [Left bracket indicates a simultaneous start by two speakers
-] Right bracket indicates two utterances ending simultaneously

Appendix B Questions for the Tutors During Interview

- Q. What do you think of your work as a tutor?
- Q. What is most difficult in doing the tutorials?
- Q. When do you feel most fruitful as a tutor?
- Q. How do you prioritize the problems to work on with the L2 tutees?
- Q. How do you explain to the tutee who doesn't understand the "No proofread policy"?

Evolving with the Times: COVID-19's Impact on Tutoring in Higher Education

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Abstract

The impact of the COVID-19 pandemic on higher education is being widely studied. However, research on its effect on tutoring is relatively sparse. Furthermore, no study places existing studies in dialogue with each other. This study synthesizes ten international articles on higher education tutoring during the pandemic. This review found changes and difficulties in accessibility, tutoring modalities, and pedagogy during sessions. However, the limited number of articles shows that more research needs to be done to understand the effects of COVID on tutoring and how tutoring centers can evolve to adapt to the new normal.

Keywords: Online tutoring, Learning Centers, COVID-19, higher education

Evolving with the Times: COVID-19's Impact on Tutoring in Higher Education

In 2020, the face of higher education was changed by the advent of the COVID-19 pandemic to the United States. Institutions had to quickly decide how they were going to transition all their services, from classes to administration, to an online format where they could

continue to have classes while also being socially distanced to help flatten the curve. One area in higher education which COVID-19 affected was tutoring and learning centers. As the lockdown prevented face-to-face meetings, tutoring centers had to find different ways to meet with students and give them educational support.

Technology became the way tutoring centers connected to students in their homes. However, this was a major shift to many centers. Before the pandemic, one survey found that less than half of the 75 colleges and universities surveyed offered online tutoring (Mills et al 2022). Furthermore, a survey that went out after the pandemic revealed that out of twenty-eight higher-education learning centers surveyed, only three had online tutoring before the pandemic (Johns & Mills, 2021). This mode of tutoring dramatically changed after the pandemic, as each one ended up having some form of online tutoring available. Through these surveys, researchers showed that even if some centers may have had online tutoring as an option, there were many more in which this switch was a brand-new experience. Furthermore, even before the pandemic, there was a call for more tutor training concerning the difficulties of online tutoring, with the Association of Colleges for Tutoring and Learning Assistance (ACTLA) even publishing some standards for online tutor training (Price et al, 2007; ACTLA, 2019). However, the standards were not attached to any research and were

also published right before the COVID-19 pandemic started. Consequently, when the pandemic hit, learning centers needed to rapidly get their tutors up to speed on technology that they may or may not have been familiar with while also preparing tutors to help students get used to this sudden shift.

Research Questions

Two years after this event, I wanted to examine research on higher education learning centers to understand how the online shift during the COVID-19 pandemic affected tutoring. In reviewing the literature, I examined two questions: First, how did the virtual switch because of the pandemic change tutoring and tutoring pedagogy in higher education? Secondly, what difficulties have arisen in tutoring due to the switch to online platforms? Online tutoring is becoming the “new normal” for higher education tutoring centers. In the Johns and Mills (2021) survey mentioned above, eighty-seven percent of respondents were either considering or fully intending on continuing online tutoring after the restrictions were lifted. Moreover, research on higher education online support services, especially in STEM, is lacking (Mullen et al, 2021). Thus, more research needs to be done on online tutoring, and the pandemic gives an opportunity to examine online student support and the difficulties and opportunities it may present. Hopefully with this information, tutoring centers will know various resources

of online tutoring, understand the benefits of online tutoring, and be aware of some difficulties that training ought to address.

Methods

I used a qualitative content analysis-styled literature review to answer these research questions. Content analysis allows me to interpret meaning to data (Schreier, 2012). In this case, I wanted to interpret how the different research articles came together to show different areas in which tutoring was affected by the switch to virtual platforms. To do this, I searched for articles that specifically focused on tutoring centers or learning centers in higher education. Furthermore, I looked for peer reviewed quantitative, qualitative, and mixed methods studies, while bypassing articles that were simply reflections on the pandemic with no analysis. At first, I used a university library's search feature and ERIC to search for articles. However, after not finding many articles that related to tutoring, I used Google Scholar to find most of the articles. When searching these databases, I used the search terms "tutoring," "COVID-19," "higher education," and "learning center." From these searches, I found ten articles dealing with the effects of the pandemic on learning centers and tutoring in higher education throughout the world. There were five articles conducted in the United States, one in Spain, one in Ghana, two from South Africa, and one final article that examined both Ireland and Australia.

After collecting the articles, I noted the methods of the articles and then examined their results and conclusions for initial results within the articles that signified changes and difficulties within the tutoring programs using reductive coding in order to index the results (Schreier, 2012). These codes were then noted on an Excel file and the following article was coded in the same way. After all the articles were coded, I compared the ideas found within the sources, compiled them into categories, and then created themes (see Table 1).

Table 1
Example of Analysis Procedures for Accessibility Theme

Source	Reductive Code	Category	Theme
(Mullen et al., 2021).	Math is hard to communicate via Zoom, some students found online very accessible to schedules	Software issues, flexible/accessible	Accessibility
(Aboagye, 2021)	Hard times with network connectivity and technology expenses	Network issues, expenses/prices	Accessibility
(Motaung & Makombe, 2021).	Difficulty with internet access especially off campus, issues with data costs. Power outages. Students found aid flexible	Network issue, expenses, power issues, flexible/accessible	Accessibility

Findings

This content analysis unearthed three main themes dealing with the changes and difficulties with tutoring: accessibility, mode of tutoring, and tutoring pedagogy.

Accessibility

One area where there were common ideas among many of the articles was in the theme of accessibility. In some of the articles,

authors emphasized the lack of tutoring accessibility, especially concerning internet difficulties. This was especially true in Africa. One mixed methods study in Ghana by Abogye (2021) would find this to be true. He quantitatively examined, via questionnaire, sixty-three tutors throughout Ghana, with ten also participating in a phone interview via purposive sampling which he qualitatively coded. One finding of this study was that both students and tutors complained of network connectivity and slow internet. Two other studies in South Africa reported similar results. Motaung and Makombe (2021) interviewed nine online tutors for an English class using a questionnaire, analyzing them qualitatively on the tutor's experience when tutoring students at a rural South African university. Motaung and Makombe (2021) found that the tutors' internet access was spotty, especially when off campus; thus, they could not consistently connect with tutors. The other South African study by Nyawo (2021) surveyed 170 students in the University of KwaZulu-Natal, using quantitative Likert scale questions to examine the students' experiences with tutoring before and during COVID-19. They found that poor internet connectivity and network issues were major problems for the students. Overall, these studies showed that slow internet connectivity along with power issues made it challenging for students to access the tutoring provided by their institutions.

However, this issue with accessibility was not only seen in Africa. An American study by Gregg & Shin (2021) quantitatively analyzed data from the University of Maryland, Baltimore County's Academic Success Center and thematically analyzed conversations happening in tutor training. Gregg & Shin (2021) found that working remotely was a challenge for some of the tutors as internet connections were spotty. Thus, internet connection issues were found to be an issue both inside and outside of the United States, though it seemed to not affect studies in the United States as much as those in Africa.

Many of the above articles also reported that there were major difficulties getting either the students or tutors to adapt to the new technologies that were used for tutoring (Aboagye, 2021; Gregg & Shin, 2021; Motaung & Makombe, 2021). Without a decent knowledge of the software being used to facilitate tutoring, students could feel like their accessibility to tutors is limited. At the same time, tutors might have difficulties accessing students and relaying key information if not well-versed in said software. Mullen and colleagues' (2021) examined students and tutors in both an Irish and an Australian university to see if there were similar issues faced by Math tutors in the areas. The researchers qualitatively analyzed interviews among seven Irish students and four Irish tutors along with six Australian students and six Australian tutors. One issue they found was that tutoring Math became a complicated process

because technology did not allow the tutors to quickly transfer mathematical symbols using their online platform. A study by Van Maaren (2022) also found that software was an issue. The author examined twenty-three tutors and twenty-three students at the Catholic University of America using Likert scale questions and open-ended questions. While they had very few students respond that technology was a barrier to tutoring, they found through the open-ended responses that students sometimes ignored or were wary of links for easy access to the tutoring center. This finding revealed that students, although they did not feel that there was a technological barrier to tutoring, had technological hurdles from accessing tutors because of their unfamiliarity and suspicion with the tutoring links. Thus, technology was a factor in hindering students' accessibility to tutoring.

While internet difficulties and new technology were central accessibility problems brought up by the literature, there were other issues mentioned by two of the African studies: technology cost and electricity issues. Aboagye (2021) found that students complained of how expensive it was to buy smartphones and other needed technology. This was echoed by Motaung & Makombe (2021) who stated that the student engagement with tutoring was not consistent because of data costs. Electricity was also an issue, with Nyawo (2021) stating that it was hard to reach all types of students with their survey because the province where the college in that study

was located lagged behind the other provinces of South Africa in terms of electricity. Furthermore, Motaung & Makombe (2021) stated that the tutors they surveyed complained that the lack of electricity affected tutoring. Overall, the switch to online tutoring created accessibility issues for many students. Internet access and unfamiliarity with technology were major hinderances to accessing tutors, while the cost of technology and lack of reliable electricity were further hurdles that some communities had to overcome.

Despite these disadvantages, many of the previous articles also agreed that online tutoring could aid accessibility because it is convenient for students (Gregg & Shin, 2021; Motaung & Makombe, 2021; Mullen et al., 2021; Van Maaren et al., 2022). Motaung & Makombe (2021), which reported internet difficulties with tutoring, still found that tutors and students found online tutoring very convenient. Furthermore, Gregg and Shin (2021) also showed that while their overall student usage decreased slightly, those that did use the tutoring center virtually used it more often.

Other studies would affirm that the shift to online tutoring improved student accessibility to tutoring. Johns and Mills (2021) surveyed 107 members of the Mathematics Center Leaders listserv and received twenty-eight responses. This survey included multiple choice, Likert questions, and open-ended questions. Afterwards, the Likert questions were quantitatively analyzed while the open-ended questions were qualitatively analyzed. One result they found was

that eighty-seven percent of leaders stated that they would continue online tutoring past the pandemic as it could be more convenient for commuter and non-traditional students. Another study by Mendoza & Kerl (2021) did a mixed methods study examining the benefits of having an online tutor embedded into a classroom. The researchers sent surveys out to undergraduates of the University of New Mexico that included matrix, multiple choice, and open-ended questions. Mendoza & Kerl (2021) found that keeping a tutor in the virtual classroom made them easily accessible to students while also keeping the students engaged with class. These studies together show that the switch to online was not a net negative, but instead was a mixed bag. While there were many technological and internet accessibility hurdles to jump through, the students that succeeded found the tutoring center very accessible and flexible with their schedules.

Modality

Another common theme was the different modes that were used by various tutoring centers. Some of them were, or had the potential to be, synchronous. Many of the studies located in the western world talked about using Zoom (Johns & Mills, 2021; Mullen et al., 2021; Van Maaren et al., 2022). Tutors in Johns & Mills' (2021) study preferred this platform, while both Mullen et al. (2021) and Van Maaren et al. (2022) found that tutors found it more challenging using the platform than being face-to-face. Another study, by

Manasse and Rostworowski (2022), examined a California community college, wanting to see if the materials they were giving in training were making a difference in their community college. The authors surveyed 334 students and had a focus group of five students. The survey consisted of multiple-choice questions, Likert scale questions, and open-ended questions. The focus group answered interview questions about tutoring and found that most of the students liked using Zoom and thought that it was an easy platform on which to be tutored. This ease-of-use factor may explain why it was so widely used in the United States, Ireland, and Australia. Unfortunately, very few of the studies examined the Zoom modality in depth and the benefits and drawbacks of its use as a tutoring platform.

On the other hand, Zoom was not the only modality used for tutoring. Gregg & Shin (2021) reported using Google Meet for synchronous tutoring sessions, though the researchers did not delve into the modality but instead just listed it as a tutoring technology their tutors had been using. Additionally, in Spain, Pérez-Jorge and colleagues (2020) quantitatively analyzed a survey of 193 education students in Spain's University of La Laguna using a five-level Likert scale in order to see how the different tutoring modalities affected the students' transition to the online format of the university and their satisfaction with the services offered. The researchers found that these students were most satisfied with the tutoring services

when using WhatsApp for tutoring, which could either be synchronously or asynchronously used. However, they did not get any information as to why the students were most satisfied with the platform. Consequently, while Zoom was a major mode used in online tutoring, Google Meet and WhatsApp were other synchronous modes that were highlighted.

While these synchronous options were mentioned, other places use asynchronous tutoring modes. For example, two of the articles based in Africa used the discussion board of their university's Learning Management System (LMS) for tutoring (Aboagye, 2021; Motaung & Makombe, 2021). Both studies said that tutors were not as effective using the LMS as they were in face-to-face sessions and more training would be needed. Johns and Mills (2021) noted that e-mail, Piazza, and Slack were popular asynchronous forms of tutoring. However, they only listed these modalities and did not deeply examine them for their effectiveness for online tutoring. Pérez-Jorge and colleagues (2020) found that while students were most satisfied with WhatsApp, they also heavily used e-mail tutoring. Gregg & Shin's (2021) study listed Jamboard and Goboard as asynchronous tutoring options but failed to examine their effectiveness as tutoring platforms. Thus, these research articles show tutoring centers used a variety of modes to reach students during the pandemic. These included both synchronous and asynchronous modalities; however, more research should be done

to examine the effectiveness of the different online tutoring modalities.

Pedagogy

Finally, the articles found that this shift to online tutoring negatively affected tutoring pedagogy. Some studies mentioned pedagogical difficulties in general, but did not explain many specifics (Aboagye, 2021; Johns & Mills, 2021; Van Maaren et al., 2022). Other articles found that tutors had trouble motivating their students to do the work (Motaung & Makombe, 2021; Mullen et al., 2021; Van Maaren et al., 2022). Mullen and colleagues (2021) noted that because students did not turn on the camera, tutors had a challenging time reading their students on when to best motivate them because there were no physical gestures. Motaung and Makombe (2021) on the other hand were concerned that the lack of motivation on the discussion boards led to the tutoring mode becoming more like a student drop box rather than a place for meaningful conversations between tutor and student. Furthermore, the tutors they surveyed indicated that students were not motivated to learn as there was a higher count of plagiarism among the students. Thus, tutors found it hard to motivate students and did not have the pedagogical training to know how to respond. Unfortunately, the studies gave no data-backed reasoning for this lack of motivation, and little in the way of ideas to help tutors motivate students when in an online tutoring session.

Another pedagogical issue that a few studies emphasized was that the tutors resorted to explaining more than using questioning techniques (Gregg & Shin, 2021; Johns & Mills, 2021). While Gregg & Shin (2021) did not list a reason for this difficulty, Johns and Mills (2021) posited that this might be because students did not want to talk or because of technological issues. The researchers also stated that after the pandemic, tutors needed to be trained on intentional active learning and questioning strategies, suggesting that these techniques needed to be refined after the switch to online tutoring. Thus, the challenge for tutors to use questioning techniques online was another pedagogical issue that plagued online tutors.

Finally, some articles reported that tutors found difficulty in tutoring certain subjects, like math, using the online platforms (Aboagye, 2021; Gregg & Shin, 2021; Motaung & Makombe, 2021; Mullen et al., 2021). Aboagye (2021) found that many of the tutors did not come in with an understanding of the college's LMS, and thus were hindered from helping their students. Gregg & Shin (2021) found that unfamiliarity with a particular software and distractions such as students' background noises led to tutoring challenges for the tutors. Motaung & Makombe (2021) stated that internet outages could happen in the middle of the session, affecting the effectiveness of the tutoring pedagogy. The study by Mullen and colleagues (2021) explained some of the problems technology had on tutoring pedagogy with tutors saying that it was hard to

listen to students try to vocalize their math problems and whiteboards were messy with not enough space. Furthermore, the technology removed the doing it and seeing it part of tutoring pedagogy, as tutors were not always able to see what their students were doing and the steps they were making in the problem. Overall, the studies show that the sudden online switch affected tutoring negatively in many ways. Issues dealing with motivation, questioning techniques, and technology were highlighted by the research; however, more research needs to be done to find ways to help tutoring centers account for these issues in their online training programs.

Conclusion

Ultimately, this literature review has unveiled many changes and difficulties that the pandemic thrust upon tutoring programs worldwide. These articles show that while online tutoring was convenient for some students, not all students had the same accessibility to online tutoring. They also revealed that tutors needed to be familiar with various modes of tutoring, whether synchronous or asynchronous, while also being flexible with different software to reach the most students. Finally, these studies shed some light on the need for tutor training on the use of good tutoring pedagogical practices in online formats.

Since the mid-2000s, there has been a desire to advance tutoring standards and initiatives supported by research (Price et al,

2007; Van Maaren et al., 2022). With more tutoring centers staying virtual after the pandemic, there is a distinct need to increase understanding in areas where tutoring ought to be adapted to a virtual space. Hopefully, this literature review will contribute to finding solutions to these issues. By understanding both the positive and negative aspects of accessibility to technological tutoring spaces, tutoring centers can prepare different avenues of tutoring to reach as many people as possible, while administration can use the research to help solve the monetary and technology issues that students may have. The modality findings show that there are many different resources that tutoring programs have used to help reach students and if one format is not working, centers may want to try other formats in which other centers have found success.

Understanding the pedagogical troubles of online tutoring during this transition can help target key areas for additional standards, initiatives, and training.

Overall, the lack of articles shows that more research needs to be done on how the pandemic affected tutoring. Based on these articles, future research should look at specific pedagogies affected by this online transition. While some articles did look at this topic in general, none of the studies focused specifically on pedagogy and how the sudden shift to online tutoring affected this. Furthermore, with the known problems of accessing technology, studies should examine what groups of people are most affected by accessibility

issues in tutoring. These studies could include solutions that some tutoring centers have used to bridge this accessibility gap. By examining how different universities and colleges helped students gain access to tutoring services, these studies can offer tutoring centers additional ideas on how to reach more students with online tutoring. With most tutoring centers saying they will keep online tutoring as an option post-pandemic, understanding these issues will help tutoring centers build quality tutoring programs to better help students in the years to come.

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Investigating the Epistemological Development of Academic Peer Leaders Across STEM Disciplines: Exploring Changes Over Time, By Gender, and by Discipline

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Abstract

Academic peer leadership positions provide opportunities for undergraduate students to develop content knowledge, Twenty-first Century Skills, and their beliefs about teaching and learning. To explore peer leaders' (PLs') epistemological development, the Epistemological Beliefs about Physical Sciences (EBAPS) survey was administered to 135 PLs three times a year, over a three-year period. This instrument was demonstrated to be valid and reliable for use with STEM PLs. Although the majority of positive shifts within

instrument constructors occurred during the fall semester, responses did not regress by the end of the spring semester, demonstrating a retention of the new or altered beliefs over time. Implications for the design of PL development programs are discussed.

Investigating the Epistemological Development of Academic Peer Leaders Across STEM Disciplines: Exploring Changes Over Time, By Gender, and by Discipline

Introduction

As universities focus on educating students for success in the STEM workforce, they are increasingly searching for ways to help students develop Twenty-first Century Skills because individuals in STEM fields “must be able to adapt to new work environments, communicate using a variety of mediums, and interact effectively with others from diverse cultures” (Koenig, 2011, p. viii). Twenty-first Century Skills are defined as fitting into three primary categories: cognitive, intrapersonal, and interpersonal (Pellegrino & Hilton, 2012). While many programs provide opportunities for students to develop these skills, not all appear to be equally emphasized among STEM disciplines. Undergraduate research experiences, for example, are highly valued and highly recommended for STEM students. Yet, within some departments at any given institution, there may be a number of impediments to

participation, including the competitiveness of UG research positions, limitations in the number of opportunities available, time and travel constraints, and similar challenges that limit students' opportunities for UG research. Academic peer leadership positions provide an alternative or complementary opportunity for students because they promote development in all three of these categories described above by Pellegrino and Hilton (2012). These positions are offered on-campus and can provide meaningful experiential learning opportunities that may be otherwise inaccessible to students with travel restrictions or other barriers to accessing experiential learning opportunities that are off-campus or unpaid. The research completed through our Preparation in STEM Leadership (PSL) Program investigated the Twenty-first Century Skills and competencies developed through academic peer leadership to provide practitioners with evidence that can be used to evaluate the value of these programs as experiential learning opportunities in STEM disciplines.

For our work, we use the term “academic peer leader” (PL) to include undergraduate students who tutor (e.g., walk-in, group tutoring, one-on-one tutoring, or holding “office hours”); lead study groups or review sessions; or facilitate active and collaborative learning with (or without) course instructors or TAs in lectures, recitations, workshops, or laboratory sessions. We include students whose PL positions involve an emphasis on supporting students

with course content. We do not include students whose peer leadership roles are solely associated with general mentoring, such as in residential life, general academic coaching, or extracurricular organizations. Within a large, public, R1 institution, there are, of course, many PL programs providing support in STEM disciplines, such as Learning Assistants (LAs; Otero, 2015), Supplemental Instructors (SI; Martin & Arendale, 1992), and Teaching Interns (TIs, Atieh & York, 2020). These programs have varying requirements for formal training or professional development.

Quality PL programs lead to improved learning gains (Barrasso & Spilios, 2021; White et al., 2016) and “increased satisfaction, persistence and retention, social development, and academic performance” of the students served (Ganser & Kennedy, 2012, p. 17). These programs provide the opportunity to broadly impact the teaching and learning community of STEM courses. However, because most of the research literature involves assessing or evaluating the impacts on students served by PL programs, assessing the development of the PLs themselves and evaluating PL programs remain areas needing attention (Table 1). While there is evidence that PL positions contribute to enhanced professional identity for learning assistants (Close et al., 2013; Close et al., 2016; Nadelson & Fannigan, 2014), a robust understanding of the skills and competencies developed through various PL experiences is still needed.

Because research has found that “neither success nor sustainability can be attained in a peer leadership program without thoughtful and intentional planning, management, and training” (Esplin et al., 2012, p. 85), the overarching goal of our PSL program was to develop a standard for PL training that could be assessed rigorously and implemented across multiple programs (Blackwell et al., 2017). Through the PSL program, PLs in STEM disciplines earned a scholarship to participate in advanced training and professional development workshops, including enrollment in a 3-credit, 300-level pedagogy course that was typically only available to first semester LAs. Part of the PSL project involved identifying instruments that could be used to assess the development of content knowledge, pedagogical knowledge, leadership styles, and communication skills.

Table 1
Non-Inclusive List of Studies Investigating Various Aspects of Peer Leader Programs

Category	Sources
Assessing Students Served by PL Programs	Allenbaugh & Herrera (2014); Alzen et al. (2017); Alzen et al. (2018); Blanc et al. (1983); Eren-Sisman et al. (2018); Fayowski & MacMillan (2008); Gok (2012); Hockings et al. (2008); Knight et al. (2015); Lewis (2011); Martin & Arendale (1992); Moore & LeDee (2006); Mutanyatta-Comar & Mooring (2019); Parkinson (2009); Peterfreund et al. (2008); Rath et al. (2007); Rath et al. (2012); Talbot et al. (2015); Van Dusen & Nissen (2017); Van Dusen & Nissen (2020); Weidler-Lewis et al. (2013); White et al. (2016)
Exploring the Development of PLs	Atieh & York (2020); Barrasso & Spilios (2021); Becker et al. (2016); Bourne et al. (2021); Cao et al. (2018); Close et al. (2016); Gray & Otero (2009); Hite et al. (2021); Lockie & Van Lanen (2008); Nadelson & Fannigan (2014); Top et al. (2018)
Evaluating PL Programs	Arco-Tirado et al. (2011); Colver & Fry (2016); Sabella et al. (2016); Wilson & Varma-Nelson (2016)

This article summarizes our findings from investigating the use of the Epistemological Beliefs about Physical Science (EBAPS) survey to assess the epistemological development of PLs over the course of one semester and one year. We included epistemological development as part of our category on content knowledge development, although it is not necessarily discipline-specific. Moreover, epistemological development includes more than simply understanding or applying the foundational concepts within a discipline; rather, it involves an understanding of the nature of knowing. The epistemological views of PLs are important to be able to assess because PLs will be interacting with, and likely influencing, the views and beliefs of the students whom they are helping to learn. We would argue that PL program directors and coordinators are aware that PLs are students who are still developing their core skills, competencies, and content knowledge in their own right; PLs are still developing as students, as leaders, and as professionals. It is important for PL programs to be able to assess this construct in order to demonstrate this outcome as a benefit to participation in PL positions and to evaluate whether or not any implemented (or modified) training and professional development opportunities resulted in a shift in this construct for the PLs.

Research Questions

In this article, we present findings to answer three research questions:

1. Is the Epistemological Beliefs About Physical Science (EBAPS) survey instrument reliable with a population of academic peer leaders (PLs)?
2. Do PLs' epistemological beliefs (as measured by EBPAS) shift after serving in their position for one or more semesters?
3. If epistemological beliefs shift over time, are there differences between groups of academic peer leaders by gender or STEM discipline?

Relevant Literature

Peer leadership training, when implemented according to best practices, emphasizes the "application of knowledge, skills, and responsibilities to new settings and complex problems" and leads to the application and development of "skills and capabilities such as self-direction, leadership, oral communication, intercultural skills, civic engagement, teamwork, and critical thinking" (Shook & Keup, 2012, p. 10). Students who undergo such training and serve as PL have reported "increased confidence in their ability to manage group dynamics, facilitate learning, and empathize with their students," as well as learning to address "real-world," ill-defined problems that "require multiple areas of knowledge and multiple

modes of inquiry" (Shook & Keup, 2012, p. 11). Several studies have demonstrated growth in critical thinking, problem solving, and group processing (Table 1) and that peer mentoring opportunities "increase leadership capacity among students-of-color" (Tingson-Gatuz, 2009, p. 3).

The development of twenty-first century skills described by Shook and Keup (2012) and Tingson-Gatuz (2009) are multifaceted and overlap with other developmental constructs such as views and attitudes towards learning (Gray & Otero, 2008), beliefs about the nature of knowledge and learning, and scientific identity development (Close et al., 2013; Close et al., 2016; Hite et al., 2021). To the best of our knowledge, epistemological development has not been investigated based on participation in STEM academic peer leader programs. These programs, however, have the potential to impact the development of epistemological beliefs because PLs approach understanding and learning the content in a new way when they assume an instructional role.

While many instruments are available to measure undergraduate students' attitudes, beliefs, and expectations about learning in science or in specific STEM disciplines, fewer instruments have been developed to measure epistemological beliefs within the STEM disciplines at the post-secondary level (Appendix A). Duell (2001) reported on a variety of instruments to measure epistemological beliefs; at that time, discipline-specific instruments to measure

epistemological development were relatively new to the field. Although survey instruments such as CLASS-Phys (Perkins et al., 2005), CLASS-Chem (Barbera et al., 2008), CLASS-Bio (Semsar et al., 2011), MPEX (Redish et al., 2000), and CHEMX (Grove & Bretz, 2007) were developed between 1998-2011, these surveys were designed to measure attitudes, beliefs, and expectations about learning in chemistry, physics, or biology courses, which do not necessarily include epistemological beliefs. Duell's report, however, provided a useful list of instruments (from inventories to interviews to vignettes), organizing them by uni- or multidimensional constructs and providing theoretical frameworks. DeBacker *et al.* (2008) analyzed the factor structure and internal consistency of three instruments (Epistemological Questionnaire (Schommer, 1990), Epistemic Beliefs Inventory (Schraw, Bendixen, & Dunkle, 2002), Epistemological Beliefs Survey (Wood & Kardash, 2002)). In all cases, DeBacker *et al.* uncovered psychometric issues that likely result from the conceptualization and specificity of epistemic beliefs. Ultimately, all of these instruments were focused on measuring epistemic beliefs of students and not PLs.

Because our PLs spanned many STEM disciplines, we were interested in administering a survey that was not constrained to a single discipline but was more specific to science or STEM than a general epistemological instrument. We also needed an instrument that could be administered to, and scored relatively easily with, a

large number of students. For these reasons, we chose to investigate the potential of the Epistemological Beliefs about Physical Sciences (EBAPS) survey to assess PL epistemological development, even though it was designed to measure students' epistemological beliefs within the context of physical science examples (Elby, 2006b; Otero & Gray, 2008) and some of our PLs were assigned to mathematics, natural sciences, life sciences, computer science, and engineering disciplines.

The EBAPS Survey contains 30 items organized into three sections based on the format of the items. Part 1 contains 17 statements with a 5-point Likert scale from strongly disagree to strongly agree, with "neutral" listed as the mid-point option. Part 2 contains 6 fixed-response items. Part 3 contains 7 items written as a short discussion between two students, and the fixed-response choices asks for the degree to which the participant agrees with only one student or with both students. All EBAPS items are scored using a non-linear scoring scheme that ranges from 0 (least sophisticated) to 4 (most sophisticated) that takes into account whether a "neutral" response is more or less sophisticated than other options; this scoring scheme differentiates the EBAPS survey design from traditional attitude instruments that contain only Likert-scale items.

According to the EBAPS designers, 26 of the 30 items map onto one of five Axes (Table 2): (1) *Structure of scientific knowledge*, (2)

nature of knowing and learning, (3) *real life applicability*, (4) *evolving knowledge*, and (5) *sources of ability to learn*. Two of the 30 items map onto two Axes and two items do not map onto any Axis but are included in the overall score. Recently, Johnson and Willoughby (2018a) explored the underlying structure of the EBAPS items using exploratory factor analysis on data collected over five years from 1,258 students at the end of an introductory astronomy course. Johnson and Willoughby reported on both a 3-factor and a 5-factor model--where the 5-factor model partially overlaps with the original Axes described by Elby--but around half of the items did not fit either model. Because Johnson and Willoughby's study focused on the epistemologies of introductory astronomy students, the analysis reported herein will utilize the original five Axes described by the EBAPS designers (Appendix B).

Reports in the literature regarding the use of the EBAPS survey have primarily been conducted with students enrolled in introductory college-level physics (Otero, 2008; Warren, 2018 & 2020) and astronomy (Johnson & Willoughby, 2018a & 2018b) courses. Typically, the EBAPS instrument has been administered to students to study the effects of specific curricula or instructional interventions (e.g., Physics & Everyday Thinking (PET) and Physical Science & Everyday Thinking, Bayesian activities (PSET; Otero, 2009)). Elby (2001), for example, observed that students were only likely to develop more sophisticated epistemologies when the

curriculum had an explicit focus on epistemological development (5.3% gains on overall instrument). Otero and Gray (2008) reported that students from courses using the PET and PSET curriculum had 14%-25% higher scores than those in traditional courses. Johnson and Willoughby (2018a) administered the EBAPS to investigate changes in epistemological development among students in an introductory astronomy course that had been modified to include a focus on the *nature of science*. Johnson and Willoughby (2018a) observed some differences in epistemological beliefs (and the degree to which these beliefs decayed over time) among students enrolled in different colleges (e.g., Letters of Science, Business, Education) and by gender.

Methods

Overview

PLs completed assessments at the beginning of the fall semester (pre), end of the fall semester (mid), and end of the spring semester (post). All data was collected and analyzed under a research protocol approved by Rutgers University's Institutional Review Board. PLs who participated in this research study could earn human subjects' payments in the form of a gift card for each assessment completed.

Dedicated time to complete assessments was provided during new peer leader orientation sessions (beginning of fall semester) and the pedagogy course (beginning and end of fall semester). In

addition, PLs could arrange a time to complete assessments in a supervised setting. Paper-and-pencil responses were transcribed into electronic format. PLs could also complete some surveys (including EBAPS) online using Qualtrics (*Qualtrics*, 2020).

Data Analysis

Data was analyzed using SPSS (*IBM SPSS Statistics 28 for Windows*, 2021). A repeated-measures t-test (for the pre & mid data) and repeated-measures ANOVAs (for the pre, mid, & post data) were used to examine the main effect of time. Mixed-model ANOVAs were used to examine the effects of all demographic variables. Fisher's least significant difference procedure was used as the post-hoc test where applicable. Due to the exploratory nature of this study, we chose to not use alpha correction to ensure our tests were as sensitive as possible to potential differences in order to illuminate avenues for future research. The full descriptive statistics for all measures described herein can be accessed online at: <https://doi.org/10.6084/m9.figshare.21097921.v1>

Institutional Context

Rutgers, the State University of New Jersey is a land-grant R-1 institution that serves both New Jersey residents and students from around the world. The New Brunswick (NB) campus currently enrolls more than 33,000 undergraduate students from all 50 states and more than 115 countries. More than half of Rutgers-NB students identify as non-Caucasian and more than 80% receive

financial aid, making Rutgers-NB a diverse campus both culturally and socioeconomically. On the New Brunswick campus, the majority of STEM majors and programs are concentrated in three schools—the School of Arts and Sciences (SAS), the School of Engineering (SOE), and the School of Environmental and Biological Sciences (SEBS).

Participants

Overall, 165 PLs provided informed consent for this study. Of these PLs, 14% participated in the PSL program, 84% were learning assistants, and 52% self-identified as female. Participants' school enrollment and self-identified race/ethnicity is provided in

Axi s	Label	Description	Items *
1	Structure of scientific knowledge	Students' view physics and chemistry knowledge as "a bunch of weakly connected pieces without much structure and consisting mainly of facts and formulas" or as "a coherent, conceptual, highly-structured, unified whole"	10
2	Nature of knowing and learning	Students' view learning science as "consist[ing] mainly of absorbing information" or "constructing one's own understanding" through active engagement, experiences, and reflection	8
3	Real-life applicability	Students' view scientific knowledge and ways of thinking as limited only to specific academic/scientific settings or more broadly to real life settings. "These items tease out students' views of the applicability of scientific knowledge <i>as distinct from</i> the student's own desire to apply science to real life, which depends on the student's interests, goals, and other non-epistemological factors."	4 [†]
4	Evolving knowledge	Students' view scientific knowledge along a continuum from absolutism (e.g., "all	3 [‡]

scientific knowledge is set in stone") to extreme relativism (e.g., "no distinctions between evidence-based reasoning and mere opinion").

5 **Source of ability to learn** Students' views of being "good" at science exist along a continuum from fixed natural ability to the result of hard work and effective study strategies. Note: these views are intended to be "*distinct from* [students'] self-confidence and other beliefs about themselves."

*Two items do not map onto any Axis.

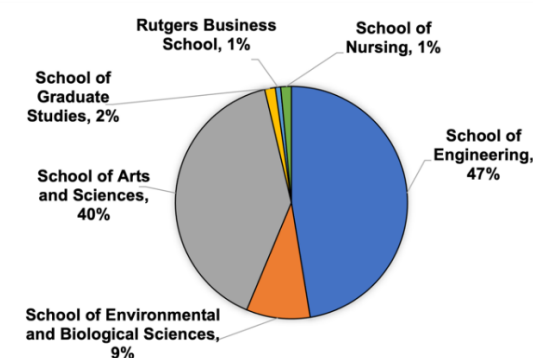
[†]One item is included in both Axis 3 and Axis 5.

[‡]One item is included in both Axis 4 and Axis 5.

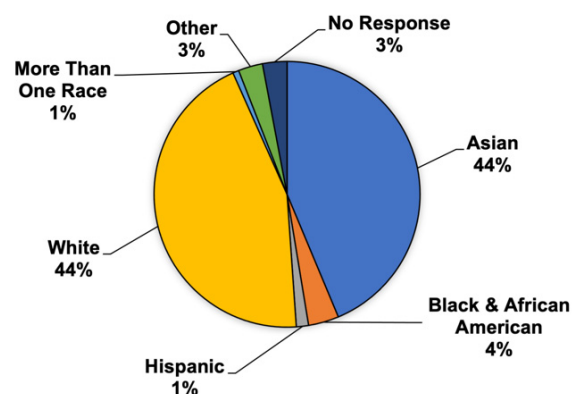
. Our sample's racial and ethnic demographics were largely representative of the university as a whole, with the exception of Asian and Hispanic students: Asian students were overrepresented in our sample, while Hispanic students were underrepresented.

Figure 1.

Study Participants' Enrolled in School and Self-Identified



Race/Ethnicity (N=135)



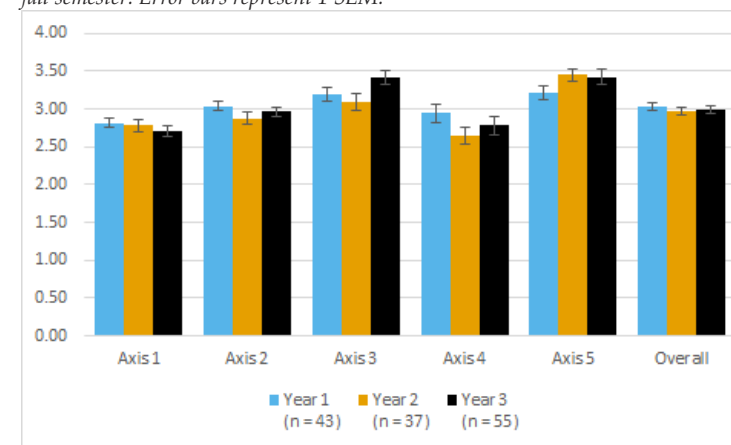
Data and Results

General Descriptive Statistics

Over a three-year period, 135 PLs completed the EBAPS survey at the beginning of the fall semester (43 in the first year, 37 in the second year, and 55 in the third year; 82% response rate overall). There were no statistically significant differences among the three cohorts for Axes 1, 2, 4, and 5. On Axis 3 (*real-life applicability*) cohorts 2 and 3 differed significantly using a one-way ANOVA, $F(2, 132) = 3.31, p = .040, \eta_p^2 = .05$, with students in cohort 3 ($m = 3.42$) scoring higher than students in cohort 2 ($m = 3.08, p = .015$). Because there was only the one difference among two cohorts on a single Axis, the cohorts were combined into one dataset to explore changes in their responses over time and among subpopulations (Figures 3, 4, 5, and 6).

Figure 2.

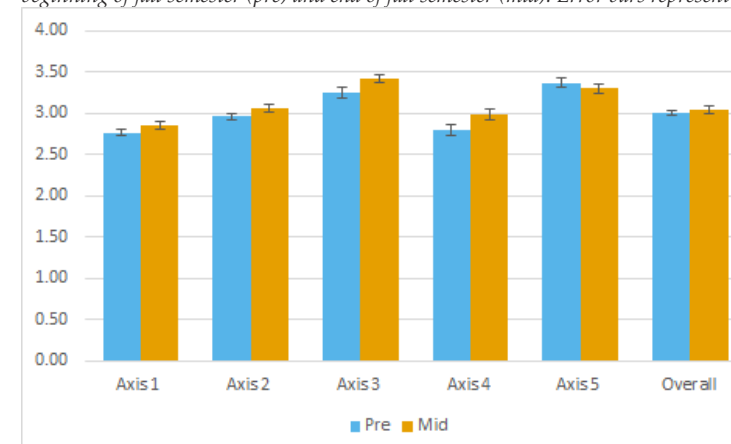
Scores on each Axis and the overall EBAPS instrument for three cohorts of PLs at the beginning of the fall semester. Error bars represent 1 SEM.



The overall average pre-scores on the five Axes range from 2.76 ± 0.46 to 3.36 ± 0.62 (Figure 3), with students scoring highest on Axis 5 (*source of ability to learn, m = 3.36*) and lowest on Axis 1 (*structure of scientific knowledge, m = 2.76*). Because scores range from 1 to 4, Axes 3 and 5 have the potential for observed ceiling effects with average pre-scores of above 3.2.

Figure 3.

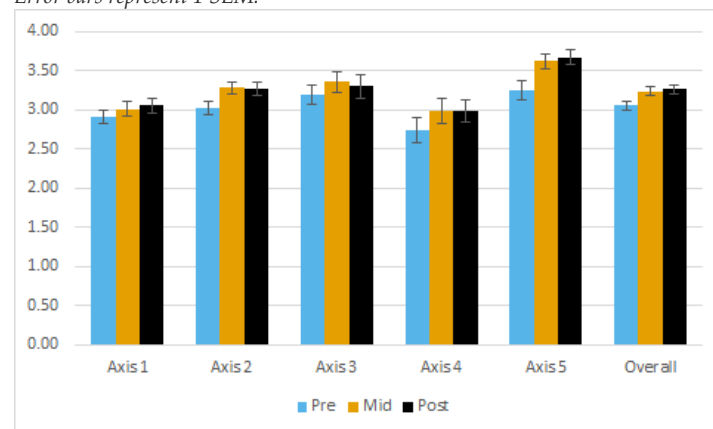
Scores on EBAPS subscales and overall instrument for PLs ($N = 129$) who completed the survey at the beginning of fall semester (pre) and end of fall semester (mid). Error bars represent 1 SEM.



Of the 135 PLs who completed the pre-survey, 129 PLs also completed the survey at the end of the fall semester (mid-survey, Figure 3), and 20 of those PLs completed the survey for a third time at the end of the spring semester (post-survey, Figure 4). Survey participation rates were high for the pre- and mid-administration periods because the PLs were assessed during orientation at the start of the semester and at the beginning and end of a pedagogy course that is required for the Learning Assistant PL position. Survey participation rates were low for the post-administration period because we did not have direct access to the PL at the end of the spring semester; we invited PLs to come to the office to complete the assessments, but many PLs choose not to complete the assessments on their own time, despite the financial compensation provided for it. Only data from PLs with matched responses are included in the investigation of changes over time (RQs 2 & 3).

Figure 4.

Scores on EBAPS subscales and overall instrument for PLs ($N = 20$) who completed the survey at the beginning of fall semester (pre) and end of fall semester (mid) and end of the spring semester (post). Error bars represent 1 SEM.



RQ1: Reliability of the EBAPS survey with academic peer leaders

Cronbach's alpha was calculated to establish internal consistency for the EBAPS survey with PLs. The designers of the EBAPS survey argued against this measure because "the assessment items were designed so that students were allowed to disagree with themselves within a subscale" and because "epistemological beliefs may be triggered depending on context" (Elby, 2006b). However, other studies reported Cronbach alpha of 0.7 for students in chemistry courses (Keen-Rocha, 2008; Lekhi, 2018).

For the 129 students who completed the pre- and mid-surveys, Cronbach's alpha was 0.61 for the pre-testing and 0.79 for the mid-testing with no items removed. Additionally, the EBAPS pre-scores were consistent across cohorts of PLs over three years, with the previously mentioned exception on Axis 3. Because we are exploring this instrument with a new, targeted population of STEM PLs who have demonstrated success in previous STEM courses, and given the instrument has 30 items, we are limited to observing the internal consistency of the items as a proxy for instrument reliability. Despite the Cronbach's alpha scores falling in the *questionable to acceptable* range, the consistent pre-scores across cohorts provides supporting evidence that this instrument is reliable with a population of undergraduate academic PLs in STEM disciplines.

RQ2: Exploring epistemological development over time

For the 129 PLs who completed the EBAPS surveys at the beginning (pre) and end (mid) of the fall semester, positive shifts were observed on four of the five axes, but not on Axis 5 (source of ability to learn) and not on the instrument overall (Figure 3).

- For Axis 1 - *structure of scientific knowledge*, there was a marginally significant increase from students' pre ($m = 2.76$) to mid ($m = 2.85$) scores, $t(128) = 1.97$, $p = .051$, $d = 0.17$.
- For Axis 2 - *nature of knowing and learning*, there was a significant increase from students' pre ($m = 2.96$) to mid ($m = 3.06$) scores, $t(128) = 2.27$, $p = .025$, $d = 0.20$.
- For Axis 3 - *real-life applicability*, there was a significant increase from the students' pre ($m = 3.25$) to mid ($m = 3.42$) scores, $t(128) = 3.22$, $p = .002$, $d = 0.28$.
- For Axis 4 - *evolving knowledge*, there was a significant difference with a small effect size between the pre ($m = 2.79$) and mid ($m = 2.98$) scores, $t(128) = 2.66$, $p = .009$, $d = 0.23$.
- For Axis 5 - *source of ability to learn*, the difference between the pre ($m = 3.37$) and mid ($m = 3.31$) scores was not significant, $t(128) = -1.03$, $p = .30$, $d = -0.09$.
- For the instrument overall, the difference between the pre ($m = 3.00$) and mid ($m = 3.04$) scores was not significant, $t(128) = 1.40$, $p = .17$, $d = 0.12$.

For the 20 PLs who completed the EBAPS surveys both at the beginning (pre) and end (mid) of the fall semester, and at the end of the spring semester (post), positive shifts were observed on Axis 2 (nature of knowing and learning), Axis 5 (source of ability to learn), and on the instrument overall (Figure 4). For all three cases where there was a statistically significant difference, an LSD post-hoc test revealed that the mid and post scores were significantly higher than the pre scores, but the mid and post scores were not significantly different from each other.

- For Axis 1 - *structure of scientific knowledge*, the main effect for time was not significant, $F(2, 38) = 2.23$, $p = .12$, $\eta_p^2 = .11$.
- For Axis 2 - *nature of knowing and learning*, there was a significant main effect for time, $F(2, 38) = 7.03$, $p = .003$, $\eta_p^2 = .27$, such that scores increased from pre ($m = 3.02$) to mid ($m = 3.28$, $p = .007$), and from pre to post ($m = 3.27$, $p = .005$) but the mid scores did not differ significantly from the post scores ($p = .90$).
- For Axis 3 - *real-life applicability*, the main effect for time was not significant, $F(2, 38) = 0.91$, $p = .41$, $\eta_p^2 = .05$.
- For Axis 4 - *evolving knowledge*, the main effect for time was not significant, $F(2, 38) = 1.37$, $p = .27$, $\eta_p^2 = .07$.
- For Axis 5 - *source of ability to learn*, there was a significant main effect for time, $F(2, 38) = 7.57$, $p = .002$, $\eta_p^2 = .29$, such that scores increased from pre ($m = 3.25$) to mid ($m = 3.62$, $p =$

.010) and from pre to post ($m = 3.67, p = .008$), but the mid scores did not differ significantly from the post scores ($p = .48$).

- Overall - There was a significant main effect for time, $F(2, 38) = 12.89, p < .001, \eta_p^2 = .40$, such that scores increased from pre ($m = 3.05$) to mid ($m = 3.24, p = .002$), and from pre to post ($m = 3.26, p < .001$) but the mid scores did not differ significantly from the post scores ($p = .43$).

RQ3: Exploring epistemological development among groups

Observed differences by gender

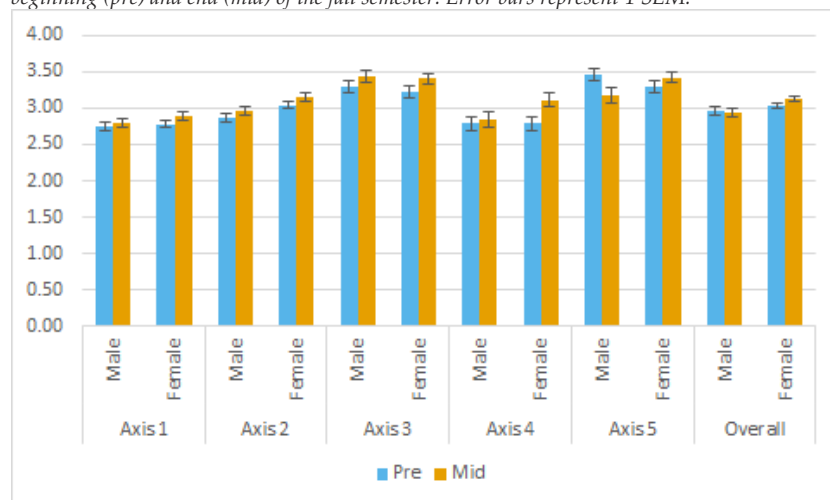
In our sample of PLs, 47.29% self-identified as men ($n = 61$) and 52.71% self-identified as women ($n = 68$). Significant main effects for *gender* were observed on Axis 2, 5, and the instrument overall, and a marginally significant main effect for *gender* was observed on Axis 4. In each case the women scored higher than men (Figure 5). There was a significant interaction between *time* and *gender* on Axis 5, and marginally significant interactions between time and gender on Axis 4 and the instrument overall; in each case, the women scored higher than men on the mid survey.

- For Axis 1 - *structure of scientific knowledge*, the main effect for gender was not significant, $F(1, 127) = 0.70, p = .41, \eta_p^2 = .01$, nor was the interaction between gender and time, $F(1, 127) = 0.45, p = .50, \eta_p^2 = .004$.

- For Axis 2 - *nature of knowing and learning*, there was a significant main effect for gender, $F(1, 127) = 7.07, p = .009, \eta_p^2 = .05$, such that women ($m = 3.09$) scored higher than men ($m = 2.92$). The interaction between time and gender was not significant, $F(1, 127) = 0.01, p = .93, \eta_p^2 = .0001$.
- For Axis 3 - *real-life applicability*, neither the main effect for gender, $F(1, 127) = 0.28, p = .60, \eta_p^2 = .002$, nor the interaction between gender and time, $F(1, 127) = 0.14, p = .71, \eta_p^2 = .001$, were significant.
- For Axis 4 - *evolving knowledge*, the interaction between gender and time was marginally significant, $F(1, 127) = 3.36, p = .069, \eta_p^2 = .03$, such that women ($m = 3.11$) scored higher than men ($m = 2.84, p = .043$) at the mid testing. The main effect for gender was not significant, $F(1, 127) = 1.44, p = .23, \eta_p^2 = .01$.
- For Axis 5 - *source of ability to learn*, there was a significant interaction between time and gender, $F(1, 127) = 10.41, p = .002, \eta_p^2 = .08$, such that women ($m = 3.42$) scored higher than men ($m = 3.18, p = .049$) at the mid testing. Scores for men at the mid-testing were also significantly lower than their scores at the pre-testing ($m = 3.46, p = .003$). The main effect for gender was not significant, $F(1, 127) = 0.19, p = .67, \eta_p^2 = .001$.

- Overall – The main effect for gender was significant, $F(1, 127) = 4.89$, $p = .029$, $\eta_p^2 = .04$, with women ($m = 3.08$) scoring higher than men ($m = 2.95$). There was a marginally significant interaction between time and gender, $F(1, 127) = 3.57$, $p = .061$, $\eta_p^2 = .03$, with women ($m = 3.13$) scoring higher than men ($m = 2.94$, $p = .011$) at the mid testing. The women's scores also increased from the pre-testing ($m = 3.03$) to the mid testing ($p = .022$).

Figure 5.
Scores on EBAPS subscales and overall instrument for men ($n = 61$) and women ($n = 68$) at the beginning (pre) and end (mid) of the fall semester. Error bars represent 1 SEM.



Observed differences among PLs' discipline

Because students can secure academic PL positions in courses outside their enrolled school, participants were grouped using two different categorization schemes. First, PLs were grouped by whether or not their assigned course was within the discipline of their major (i.e., matched major-discipline). Of the 129 PLs for

whom a major was identified, 43 were assigned to a course that matched the discipline of their major (12 Computer Science; 10 Life Sciences and Environmental Sciences, 12 Engineering; 5 Mathematics, Economics, and Logic and 4 Physics and Astronomy), while 86 were assigned to a course that did not match the discipline of their major (21 Chemistry; 4 Computer Science; 7 Life Sciences and Environmental Sciences, 1 Engineering; 4 Mathematics, Economics, and Logic and 49 Physics and Astronomy).

Second, and separately, PLs were grouped by the discipline of their assigned course: Chemistry; Computer Science; Engineering; Life Sciences and Environmental Sciences; Mathematics, Economics, and Logic; and Physics and Astronomy. There is particular mixing of students from different schools in SAS courses because students in SAS, SOE, and SEBS often have prerequisite courses offered by SAS (e.g., introductory math, biology, chemistry, and physics courses) or because these courses fulfill "core requirements" from SAS. In our sample, for example, 30 of the 53 PLs in physics and astronomy were students from SOE who were learning assistants in calculus-based physics courses. Of the remaining physics and astronomy PLs, 18 were from SAS and four were from SEBS; these PLs supported an introductory astronomy course for non-science majors and two different algebra-based physics courses that are primarily taken by life sciences majors in SEBS. Of the 17 PLs in Life Sciences and Environmental Sciences disciplines, seven were from

SEBS and eight were from SAS. The exception, however, is that PLs in engineering disciplines were all enrolled in either SOE or the School of Graduate Studies (SGS). For the purposes of this study, we excluded the students enrolled in the School of Nursing ($n = 2$), SGS ($n = 1$), and Rutgers Business School ($n = 2$) due to their small group sizes.

There were a few significant differences between PLs assigned to courses that matched their major and PLs assigned to those not matched to their major. On Axis 2, Axis 5, and the Overall instrument, PLs assigned to courses that matched major scored lower than those assigned to courses that did not match their major. However, for Axis 2, PLs assigned to courses that matched their major scored higher at the end of the fall semester than at the beginning of the semester, indicating a positive shift in epistemological development for the *nature of knowing and learning*.

- For Axis 1 - *structure of scientific knowledge*, neither the main effect for matched major-discipline, $F(1, 127) = 1.57, p = .21, \eta_p^2 = .01$, nor the interaction between matched major-discipline and time, $F(1, 127) = 0.77, p = .39, \eta_p^2 = .01$, were significant.
- For Axis 2 - *nature of knowing and learning*, the main effect for matched major-discipline was marginally significant, $F(1, 127) = 2.92, p = .090, \eta_p^2 = .02$, such that PLs assigned to a course outside of their major ($m = 3.05$) scored higher than

PLs assigned to a course inside of their major ($m = 2.93$). The interaction between matched major-discipline and time was significant, $F(1, 127) = 4.21, p = .042, \eta_p^2 = .03$, such that PLs assigned to a course inside of their major scored higher at the mid testing ($m = 3.04$) than at the pre testing ($m = 2.81$).

- For Axis 3 - *real-life applicability*, neither the main effect for matched major-discipline, $F(1, 127) = 0.72, p = .40, \eta_p^2 = .01$, nor the interaction between matched major-discipline and time, $F(1, 127) = 2.26, p = .14, \eta_p^2 = .02$, were significant.
- For Axis 4 - *evolving knowledge*, neither the main effect for matched major-discipline, $F(1, 127) = 1.76, p = .19, \eta_p^2 = .01$, nor the interaction between matched major-discipline and time, $F(1, 127) = 0.58, p = .45, \eta_p^2 = .01$, were significant.
- For Axis 5 - *Source of ability to learn*, the main effect for matched major-discipline was marginally significant, $F(1, 127) = 2.85, p = .094, \eta_p^2 = .02$, such that PLs assigned to a course outside of their major ($m = 3.40$) scored higher than did PLs assigned to a course inside of their major ($m = 3.22$). The interaction between matched major-discipline and time was not significant, $F(1, 127) = 0.01, p = .93, \eta_p^2 = .0001$.
- Overall - There was a significant main effect for matched major-discipline, $F(1, 127) = 4.10, p = .045, \eta_p^2 = .03$, such that PLs assigned to a course outside of their major ($m = 3.06$) scored higher than did PLs assigned to a course inside their

major ($m = 2.93$). The interaction between matched major-discipline and time was not significant, $F(1, 127) = 0.30$, $p = .59$, $\eta_p^2 = .002$.

Because of the extent of mixing of PLs assigned to courses from various majors, the findings above could be dependent on which courses and disciplines were in each group. Grouping PLs by their assigned course would involve groups with too few participants to compare. Consequently, we compared PLs by assigned discipline, even though we know that experiences across the courses within each discipline are likely to vary. We found a statistically significant main effect for discipline on the instrument overall with PLs assigned to engineering courses scoring lower than PLs assigned to chemistry and physics and astronomy courses (Figure 6). There was a marginally significant main effect for discipline on Axis 5, such that PLs assigned to engineering courses scored lower than PLs assigned to chemistry, computer science, and physics and astronomy courses. There was a significant interaction between time and discipline on Axis 3, such that PLs assigned to physics and astronomy courses scored higher on the mid-survey than the pre-survey, and PLs assigned to engineering courses scored lower at the pre-survey than PLs assigned to all other courses. There was a marginally significant interaction between discipline and time on Axis 5, such that PLs assigned to engineering courses scored lower than PLs assigned to all other disciplines on the mid-survey.

- For Axis 1 - *structure of scientific knowledge*, neither the main effect for discipline, $F(5, 123) = 0.90$, $p = .48$, $\eta_p^2 = .04$, nor the interaction between discipline and time, $F(5, 123) = 1.42$, $p = .22$, $\eta_p^2 = .05$, were significant.
- For Axis 2 - *nature of knowing and learning*, neither the main effect for discipline, $F(5, 123) = 1.40$, $p = .23$, $\eta_p^2 = .05$, nor the interaction between discipline and time, $F(5, 123) = 0.31$, $p = .91$, $\eta_p^2 = .01$, were significant.
- For Axis 3 - *real-life applicability*, there was a significant interaction between time and discipline, $F(5, 123) = 2.48$, $p = .035$, $\eta_p^2 = .09$, such that PLs assigned to engineering courses scored significantly lower at the pre-testing ($m = 2.79$) than did PLs assigned to chemistry ($m = 3.25$, $p = .047$), life science and environmental science ($m = 3.50$, $p = .004$), computer science ($m = 3.45$, $p = .007$), and physics and astronomy courses ($m = 3.22$, $p = .031$) at the pre-testing. PLs assigned to engineering courses also scored significantly lower at the mid-testing ($m = 3.16$) than did PLs assigned to physics and astronomy courses ($m = 3.55$, $p = .391$) at the mid-testing. The main effect for discipline was not significant, $F(5, 123) = 1.44$, $p = .22$, $\eta_p^2 = .06$.
- For Axis 4 - *evolving knowledge*, neither the main effect for discipline, $F(5, 123) = 1.11$, $p = .36$, $\eta_p^2 = .04$, nor the

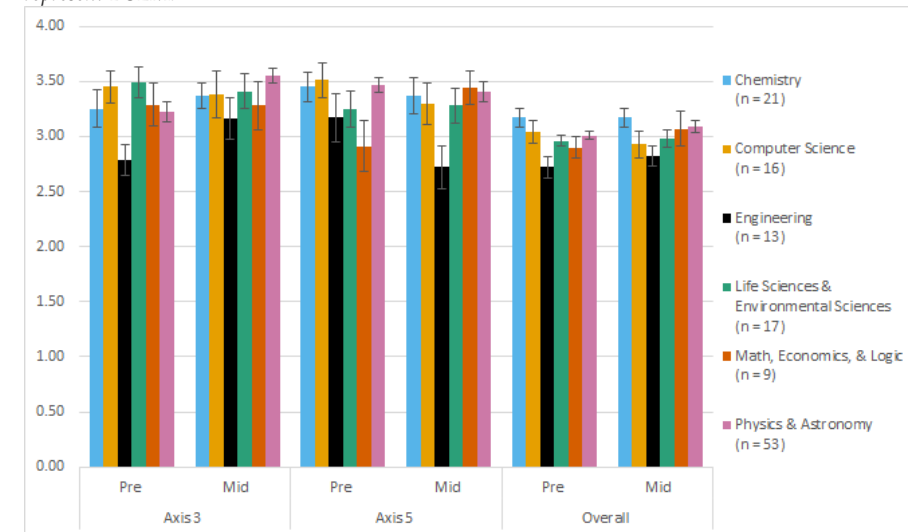
interaction between discipline and time, $F(5, 123) = 1.11$, $p = .36$, $\eta_p^2 = .04$, were significant.

- For Axis 5 - *Source of ability to learn*, there was a marginally significant main effect for discipline, $F(5, 123) = 2.06$, $p = .075$, $\eta_p^2 = .08$, such that PLs assigned to engineering ($m = 2.95$) courses scored significantly lower than PLs assigned to chemistry ($m = 3.41$, $p = .017$), computer science ($m = 3.41$, $p = .025$), and physics and astronomy ($m = 3.44$, $p = .004$) courses. There was a marginally significant interaction between discipline and time, $F(5, 123) = 2.20$, $p = .059$, $\eta_p^2 = .08$, such that PLs assigned to mathematics, economics, and logic courses scored significantly lower on the pre-testing ($m = 2.91$) than did PLs assigned to chemistry ($m = 3.45$, $p = .029$), computer science ($m = 3.51$, $p = .020$), and physics and astronomy courses ($m = 3.47$, $p = .013$) at the pre-testing. PLs assigned to engineering courses scored significantly lower on the mid-testing ($m = 2.72$) than did PLs assigned to chemistry ($m = 3.37$, $p = .008$), math, economics, and logic ($m = 3.44$, $p = .017$), life science and environmental science ($m = 3.28$, $p = .029$), computer science ($m = 3.30$, $p = .026$), and physics and astronomy courses ($m = 3.41$, $p = .002$) at the mid-testing.
- Overall - There was a significant main effect for discipline, $F(5, 123) = 2.63$, $p = .027$, $\eta_p^2 = .10$, such that PLs assigned to

engineering courses ($m = 2.77$) scored significantly lower than PLs assigned to chemistry ($m = 3.17$, $p < .001$) and physics and astronomy ($m = 3.05$, $p = .006$) courses. The interaction between discipline and time was not significant, $F(5, 123) = 1.03$, $p = .40$, $\eta_p^2 = .04$.

Figure 6.

Scores for PLs by discipline comparing beginning (pre) and end (mid) of the fall semester. Error bars represent 1 SEM.



Discussion

The EBAPS survey appears reliable for STEM PLs based on the Cronbach alpha scores and the fact that the beginning-of-semester responses across three cohorts of PLs did not differ significantly. PLs scored highest on Axis 5 (*source of ability to learn*) and Axis 3 (*real world applicability*) and lowest on Axis 1 (*structure of scientific knowledge*) and Axis 4 (*evolving knowledge*). PLs appeared to score at the more sophisticated end of the scales, which might be expected,

given that they have previously performed well in their assigned course.

As for the positive shifts that were observed during the fall semester, epistemological development could be the result of one or more factors:

- PLs were students enrolled in STEM courses where they would be learning more content and potentially be developing their epistemological beliefs.
- PLs were helping other students learn, and, therefore, they were learning more content themselves as well as developing their epistemological beliefs.
- PLs learned about teaching and learning through the pedagogy course, which contributed to the development of their epistemological beliefs.

For the last factor listed, the majority of the PLs in this study—118 out of 129 (91%) who completed the pre and mid surveys—were co-enrolled in the pedagogy course because they were required to take it as first-semester Learning Assistants or because they were participating in the PSL program. It is interesting that no additional gains were observed for the 20 students who completed the post-survey, which might suggest that the epistemological development was more affected by being a PL and taking a pedagogy course than simply taking more coursework as a student. Fortunately, it appears that epistemological gains made by the PLs in the fall semester did

not regress during the spring semester based on the fact that their scores on the mid- and post- tests were not statistically significantly different across the various groups. If, in fact, the pedagogy course was a significant contributor to the epistemological development of PLs in the fall semester (and, as noted above, additional research is needed to determine the effect of factors contributing to epistemological development on any given Axis), it is encouraging that gains were not lost during the spring semester when PLs were no longer enrolled in the pedagogy course.

While there were some observed differences based on PL gender and discipline, most of the differences were observed on only a subset of Axes or were marginally statistically significant. When comparing PL disciplines, the statistical power of the analyses is likely limited by our sample sizes; for example, there were nearly 6 times as many physics PLs ($n = 53$) as math, logic, and economics PLs ($n = 9$). In most cases, the effect sizes were small, with partial eta squared values ranging from 0.03 to 0.10. Although the survey instrument was designed for physics and chemistry disciplines, we were able to administer the instrument to PLs in mathematics, life sciences, environmental science, computer science, and engineering disciplines. Anecdotally, during administration, PLs in computer science complained about taking the survey by saying it was not relevant to their field; however, these PLs did not score significantly higher or lower than PLs in other disciplines. The PLs assigned to

engineering courses scored lower than other disciplines on some subscales of the survey instrument. Additional work is needed to understand the effects of peer leader development when they serve in courses within or outside of the discipline of their intended major.

Implications for Peer Leader Training and Professional Development

Within our context, some epistemological growth was observed during the fall semester, and this growth did not appear to regress at the end of the spring semester. Although 91% of the PLs in this study (1) were co-enrolled, or had completed, a pedagogy course and (2) would have been required to complete at least two training or professional development workshops each semester, this study was not designed to parse out the effects of the pedagogy course and/or training requirements from the effects of being a peer leader and taking additional coursework as a student. However, we are encouraged to observe development related to the *nature of knowing and learning, real-life applicability, and source of ability to learn*. It is possible that many of the topics included in the pedagogy course contributed directly to developing epistemological beliefs, such as Human Constructivism and Meaningful Learning Theory, Cognition, Metacognition, Effective Questioning, and Cooperative Learning. If a future study attempts to make claims about the specific impact of the pedagogy course, or specific training

workshops, on epistemological development, care should be taken to ensure sufficient numbers of PLs in various sub-groups, such as discipline of PL assignment, nature of assigned PL course (e.g., inquiry-based, active learning, cooperative learning), intended major, concurrent coursework while serving as a PL, year in school, pedagogy course enrollment, and training workshops completed.

Ultimately, the results from this study with the EBAPS survey were used to develop training and professional development workshops that address epistemological development across all the EBAPS survey constructs and specifically the constructs of the structure of scientific knowledge and evolving knowledge. The results were also being used by the pedagogy course coordinators during their normal practice of updating and modifying the course curriculum each semester. Although there is always more to include in the pedagogy course than time permits, there are ways to incorporate ideas around epistemological development within existing topics, such as mental models, cognition, and metacognition. For PL program directors and pedagogy course instructors, it is important to identify the types of epistemological development we value in peer leader positions, such as awareness of one's own knowledge and learning process, sources of knowledge, and how people learn new knowledge in general. Once these values are identified, and assuming we have instruments, like the EBAPS, that are valid and reliable enough to enable us to assess

these constructs, program directors and course instructors can focus on developing class activities, training workshops, and professional development programming that exposes PLs to these concepts and supports their continued development towards more sophisticated beliefs.

Implications for Future Research

While data from this study demonstrated that the EBAPS can be used reliably with STEM academic peer leaders, additional research is needed to explore the sensitivity of the instrument. Although some gains were observed on some Axes overall or for a subset of the PL population, this dataset cannot be used to investigate potential ceiling effects on some of the Axes or the sensitivity of the instrument to various degrees of epistemological development. Because epistemological development was not included as an explicit topic in the pedagogy course or for any training or professional development workshops, any observed increase to more sophisticated beliefs would have resulted from indirect instruction, exposure to, or interaction with, the associated concepts or constructs. It would be interesting to design a study that includes a sub-group of PLs who had explicit training, professional development workshops, or pedagogy course readings on epistemology and compare that to PLs who do not participate in any of these sessions explicitly related to epistemology, which could

then provide information related to the potential sensitivity of the EBAPS instrument.

As mentioned above, this current study was not designed to investigate the specific contributions or influences of various training and professional development requirements, including the pedagogy course, on epistemological development. An interesting area for future research would be to design a mixed-methods study to attempt to better understand the factors that contribute to epistemological development for STEM peer leaders. An extension of this work could include investigating the impact, if any, that the nature of the assigned course plays in a PL's epistemological development. In other words, do STEM PLs assigned to courses that include more active, collaborative, or inquiry-based learning demonstrate more epistemological development overall, or on certain Axes, than PLs assigned to more traditional courses? Ultimately, further research is needed to explore whether the effect of epistemological development is based on being a PL, the course disciplines of the PL position, the course design and curriculum of the PL position, the pedagogy course and/or specific professional development workshops and having additional coursework and growth as a student. While PLs' participated in surveys and interviews as part of the larger PSL study, that data is outside the scope of the research questions posed in this article.

Conclusions

The analysis of EBAPS survey responses from 135 PLs, across six STEM disciplines, over a three-year period suggests that the survey is valid and reliable with this population of undergraduate students: the internal consistency of the items administered at the beginning and end of the fall semester was 0.61 and 0.79, respectively; responses were not statistically significantly different between cohorts of PLs across three years. PLs' EBPAS scores increased on some axes over the course of the fall semester (namely: *nature of knowing and learning; real-life applicability, source of ability to learn*), but little to no change was observed by the end of the spring semester. Although one might expect additional epistemological growth from students continuing to both take coursework in their major and serve as peer leaders, it was encouraging that the responses do not suggest a regression of development after the first semester. While there were some observed differences between male and female students and among PL disciplines, additional research is needed to parse out the effects of any differences and to explore the effects of being a PL, completing additional coursework, or completing a pedagogy course. Ultimately, these findings inform the development of PL training and professional development workshops to address epistemological development within the PLs themselves and associated with their role supporting student development.

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Appendix A

Table A1

Instruments and Techniques Used to Measure Attitudes and Epistemological Beliefs

Instrument	Source
<i>Attitudes, beliefs, and expectations</i>	
Views about Science Survey (VASS)	Halloun & Hestenes (1998)
Maryland Physics Expectations survey (MPEx)	Redish et al. (2000)
Chemistry Expectations about learning survey (CHEMX)	Grove & Bretz (2007)
CLASS-Phys	Perkins et al. (2005)
CLASS-Chem	Barbera et al. (2008)
CLASS-Bio	Semsar et al. (2011)
Attitude towards the Subject of Chemistry Inventory (ASCI)	Bauer (2008)
Chemistry Self-Concept Inventory (CSCI)	Bauer (2005)
<i>General Epistemological Surveys and Instruments</i>	
Epistemological Beliefs Inventory (EBI)	Schraw et al. (1995)
Epistemological Beliefs Questionnaire (EBQ)	Jena & Chakraborty (2018); Schommer (1993)
Epistemological Questionnaire (EQ)	Cano (2005)
Epistemic Beliefs Survey (EBs)	Wood & Kardash (2002)
combined Epistemological Questionnaire and Epistemic Beliefs Inventory (EQEBI)	Ordoñez et al. (2008)
Schommer's Beliefs about Knowledge and Learning Questionnaire	Schommer (1990)
Written reflections	May & Etkina (2002)
Practices in authentic science inquiry	Peffer & Ramezani (2019)
<i>STEM-Specific Epistemological Instruments</i>	
Epistemological Beliefs about Physical Science Survey (EBAPS)	Elby (2006a)
Epistemological Beliefs Assessment for Engineering (EBAE)	Carberry et al. (2010)
Questionnaires	Conley et al., 2004; Kampa et al. (2016)

Appendix B

Table B1

Description of EBAPS Survey Components (Elby, 2006a)

Axis	Label	Description	Items*
1	Structure of scientific knowledge	Students' view physics and chemistry knowledge as "a bunch of weakly connected pieces without much structure and consisting mainly of facts and formulas" or as "a coherent, conceptual, highly-structured, unified whole"	10
2	Nature of knowing and learning	Students' view learning science as "consist[ing] mainly of absorbing information" or "constructing one's own understanding" through active engagement, experiences, and reflection	8
3	Real-life applicability	Students' view scientific knowledge and ways of thinking as limited only to specific academic/scientific settings or more broadly to real life settings. "These items tease out students' views of the applicability of scientific knowledge <i>as distinct from</i> the student's own desire to apply science to real life, which depends on the student's interests, goals, and other non-epistemological factors."	4 [†]
4	Evolving knowledge	Students' view scientific knowledge along a continuum from absolutism (e.g., "all scientific knowledge is set in stone") to extreme relativism (e.g., "no distinctions between evidence-based reasoning and mere opinion").	3 [‡]
5	Source of ability to learn	Students' views of being "good" at science exist along a continuum from fixed natural ability to the result of hard work and effective study strategies. Note: these views are intended to be <i>"distinct from"</i> [students'] self-confidence and other beliefs about themselves."	5 ^{†‡}

*Two items do not map onto any Axis.

[†] One item is included in both Axis 3 and Axis 5.

[‡] One item is included in both Axis 4 and Axis 5.

Examining the Efficacy of Reflection and Metacognitive Support in High Stakes Testing Preparation

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Examining the Efficacy of Reflection and Metacognitive Support for High Stakes Testing Preparation

Abstract

Many states and universities have testing requirements within their undergraduate teacher education programs for obtaining teaching licensure. These tests include the Praxis Core in reading, writing, and mathematics taken at the beginning of their program and content area assessments near the end of their study. Many students struggle to pass these high-stakes exams on their own. Therefore, this study asks what can be done to ensure teacher candidates are competent in their content knowledge for teaching? The purpose of this paper is to examine the effectiveness of two strategies that were integrated within a 13-week pilot course of 15 students. This course

focused on the alignment of study materials to exam competencies and the use of exam wrappers as a metacognitive tool.

Keywords: exam preparation; licensure exams; metacognition, pre-service teacher education, test alignment, tutoring

Review of the Literature

High Stakes Testing: Praxis Core and State Licensure Exams

While states vary in the requirement of assessments within a teacher preparation program, the passing of these assessments causes many teacher candidates to switch career paths and leave the field of education. These assessments are also costly and require additional study or preparation beyond the traditional coursework for students, causing more stress because of limited time to prepare. It is for these reasons that many teacher education programs have initiated measures to increase the number of teacher candidates passing high-stakes tests and to ensure greater access to the teaching profession for minority candidates (Zhao, 2019). Tests such as the Praxis Core Academic Skills and the Educator Assessments within their content area are currently required within multiple states.

Subject Area Assessments

The Ohio Assessments for Educators (OAE) are state testing instruments used for licensure which measure professional, pedagogical, and subject-specific knowledge and skills. Testing requirements are dependent on licensure type and content. During

the 2019-2020 program year, 52 OAE tests were available for test administration. The OAE program includes four professional (pedagogy) knowledge tests that are matched to Ohio licensure grade bands (Early Childhood, Middle Childhood, Adolescence to Young Adult, and Multi-Age). According to Pearson Education Technical Report (2014):

The OAE tests are aligned with Ohio Educator Standards, Ohio Learning Standards, and other professional standards, as appropriate. Each test was validated for use in Ohio in accordance with the practices recommended by the Standards for Educational and Psychological Testing (AERA, APA, & NCME, 2014). The Standards require a clear definition of content domain and a rationale to support a claim that the knowledge, skills, and abilities being assessed in a licensure test are required for credential-worthy performance. Educators, educator preparation program faculty, and administrators from across Ohio were involved in reviewing the test materials for content, job-relatedness, and prevention of bias; validating their appropriateness for use in Ohio, and making recommendations for the passing score for each test. (p. 1)

Praxis Core

According to the Educational Testing Service (ETS), The *Praxis*® Core Academic Skills assessments are currently required for teacher

licensure in more than 40 states to evaluate individuals entering teacher educator programs within colleges and universities (ETS Praxis, 2021). These tests measure skills in reading, writing, and mathematics, and have been identified to be essential for all candidates preparing to be teachers, regardless of the content area or grade level they aspire to teach.

Testing of teachers by ETS began in 1998 to screen applicants within schools of education with the use of the Praxis I exam (Angrist & Guryan, 2008). In 2014, the *Praxis*® Core Academic Skills for Educators (*Praxis*® Core) exam replaced the original *Praxis*® I. An individual's results on the *Praxis*® Core exams are reported as a 100-200 scaled score, with high scores indicating better exam performance. ETS revised its core exams in reading, writing, and mathematics as of September 2019. The current scores for passing these exams are a 150 in mathematics, a 156 in reading, and a 162 in writing. As identified in Table 1, "The median and average performance range for the core academic skills for educator tests were calculated on college students" (ETS Praxis, 2021, p. 53).

Table 1.
Average Passing Scores Praxis Core: Academic Core Skills for Educators

Test	Range	Interval	Test Takers	Median	Average Performance	Mean	Standard Deviation	Standard Error of Measure	Standard Error of Scoring	Reliability
Mathematics (5733)	100-200	2	21806	168	154-182	166.2	21.5	7.7	0	0.89
Reading (5713)	100-200	2	18976	170	158-184	169.7	18.6	7.5	0	0.87
Writing (5723)	100-200	2	21477	164	154-170	161.9	13.0	6.3	1.9	0.80

Historically, students have struggled to pass these high-stakes exams due to high test anxiety and low cognitive abilities, which was also evidenced by their grade point average (Zhao, 2019). In this case, reviewing student grade point averages from high school could be a predictor for how well they would do without remediation on their high-stakes exams in college. Failure to pass these first exams causes students to withdraw or be removed from their education programs early in their academic careers and enter other pathways.

In terms of tutoring for the *Praxis*® Core in mathematics, results from a longitudinal study from the University of Wisconsin-Milwaukee suggested a pre-test, tutoring, post-test cycle is helpful with students who have average mathematical abilities (Longwell-Grice et al., 2013). However, students who struggle significantly on the pre-test are recommended to take further course work while higher ability math students could simply take the exam without tutoring. Although the tutoring program within this study was limited to one 45-minute session before a post-test was given, it does demonstrate the importance of tutoring in test preparation and the importance of diagnostic measures.

Metacognitive Strategies in Test Preparation

Although resources are available through a variety of study materials, many students may need more intensive assistance to help them pass high-stakes exams. All too often, when students

receive results of a test, they focus only on the grade. While emphasis on the result of the assessment is understandable, it can lead students to miss learning opportunities that metacognitive strategies can provide. One such metacognitive strategy is the “exam wrapper,” which was introduced by Lovett (2013) in response to her students’ poor study strategies. An “exam wrapper” encourages students to reflect on their own learning. They typically consist of several questions and activities that students engage in before and/or after they complete an exam. The exam wrapper is designed to help students focus on their study strategies and encourage learning from mistakes.

Although Lovett (2013) was the first to use the term “exam wrapper,” Achacoso (2004) introduced questions to form the structure of the exam wrappers in use today. The original exam wrapper consisted of the following three questions: (1) How did you prepare for the exam? (2) What kinds of errors did you make on the exam? and (3) What could you do differently next time? (Lovett, 2013).

Research Questions

Based on the need for additional support beyond an online learning environment in preparation for pre-service teacher exams, the following research questions framed this study:

1. What is the impact of using strategies such as alignment of test competencies with study materials and metacognitive

exam wrappers in helping students prepare for high-stakes testing?

2. What are students’ perceptions of their test readiness before, during, and after a comprehensive online test preparation program?

Methods

Participants

Participants for this study included a total of 15 undergraduate education students from one private and one public university in Ohio. The private university is located in a rural community and enrolled 1,355 undergraduate students in 2021. According to the university, the students were predominantly White (78%). Thirty-one percent were first-generation college students and 95% receive financial aid. Thirty-one total students were enrolled in the education program at the private university, but not all students needed to study for an exam during the 2021-2022 academic year. The public university is located in northeast Ohio with an undergraduate population of more than 19,000 students. Additionally, the public university had a predominantly White population (74%) at the time of this research. Eighty-five percent of full-time undergraduate students received financial assistance, and 32% were first generation college students. There were over 1,000 total students enrolled in the education program at the public

university, but only one class of fourth-year students taught by an author of the study was offered this opportunity.

All education students who needed to pass either a Praxis or an OAE exam (N=14 public; N=18 private) were emailed with an invitation to join a free, non-graded, non-credit, pilot course. The incentive offered extra tutoring and assistance using an online tutoring program. Students volunteered to participate in this study and signed a consent form explaining the purpose of the study. They were given permission to exit the course and study at any time. This pilot course consisted of students who chose to work on their own or to attend a seated class section that met once a week for three hours. All students were instructed to prepare for one Praxis or OAE assessment at a time. Five students enrolled in the self-guided pilot course, and ten students enrolled in the seated class section. Table 2 identifies a breakdown of the students that participated in this study.

Table 2.
Student Participants

# of Students	Course Completion Type	Test Preparation Type
5	Self-Guided Pilot Course	OAE
5	Pilot Course	Praxis Core
5	Pilot Course	OAE

Instruments

The online 240 Tutoring® program was selected to be used as the test preparation resource because of its alignment to competencies within the Praxis and OAE assessments. Students were provided access to study guides (instructional materials, flash cards, quizzes, etc.) in the online catalog with a monthly subscription paid for by the universities. The website allowed class administrators to monitor student progress throughout the semester – from an overall summary to detailed performance evaluations.

Many websites exist that offer free test preparation resources, but the depth and breadth of these materials may not fully align with the content of the exam. According to Biggs (2003), “Constructive alignment (CA) is more than criterion-referenced assessment, which aligns assessment to the objectives. CA includes that, but it differs (a) in talking not so much about the assessment matching the objectives, but of first expressing the objectives in terms of intended learning outcomes (ILOs), which then in effect define the assessment task; and (b) in aligning the ‘learning’ methods, with the intended outcomes as well as aligning just the assessment tasks” (p. 3). Due to these reasons, a comprehensive and aligned online tutoring program was chosen as an instrument for this study.

Exams wrappers were also utilized as a metacognitive tool after students completed an initial diagnostic test (Appendix A) and again after they completed the post-test (Appendix B). The

diagnostic exam wrapper consisted of four open-ended questions and the post-test exam wrapper included eight questions. The exam wrappers were adapted from Carnegie Mellon University (2022).

Finally, the researchers created an end-of-course survey (Appendix C), which was used to collect data on student perspectives, study strategies, and general reflections about participation in the pilot course. This end-of-course survey was given to students on their final day of class or was emailed to those who chose to work individually by the class instructor, who was not an author in this study. All survey data was then shared with the researchers by the class instructor.

Pilot Course Structure

On the first day of the pilot study course, students were provided login information through email to create an online account, registered themselves for one study guide to begin their test preparation, and took one diagnostic test in their required test area (Praxis, OAE subject areas). Students then reflected on their diagnostic results by completing an exam wrapper survey (Appendix A). For both the seated and self-guided students, the instructor monitored student progress in the online system using the analytics of the program (i.e. last access date, time spent, percentage of flashcards accessed, percentage of material accessed, and the number of practice tests completed). Each student's progress was available as a downloadable transcript to identify the

percentage of the study guide completed. During the seated class, the instructor was present in the classroom, monitoring progress, answering questions, and helping students stay on track by sharing note-taking strategies.

After 13 weeks of exam preparation aligned to testing competencies, the students took a post-test. After completion of the post-test, students used a second exam wrapper to compare their results to their diagnostic test and reflect upon their progress (Appendix B). During week 13, students completed a final survey (Appendix C) to reflect on their overall progress, the structure of the course, and the online program. All results were analyzed to address the research questions as specified in the following section. At the end of the pilot course, students were encouraged to schedule their test, whereas the first two attempts of each exam were paid for by the university.

Thematic Analysis

The intent of this research was to analyze the role and impact of strategies in preparation for high-stakes testing as well as to understand students' perceptions of their test readiness in relation to how they approach their test preparation. To make sense of the data collected, the researchers engaged in a thematic analysis process to bring "order, structure, and meaning to the mass of collected data" (Braun & Clarke, 2006, p. 111). According to Braun and Clarke (2006), a thematic analysis is "a method for identifying,

analyzing and reporting patterns (themes) within data. It minimally organizes and describes the data set in (rich) detail” (p. 79). This process was particularly useful because it allowed the researchers to explore the students' initial perceptions of readiness and look for patterns in the ways they utilized metacognitive strategies in their test preparation.

Phase One of the thematic analysis consisted of becoming familiar with the data. In this phase, the researchers were immersed in the data to get a general sense of the depth and breadth of the content. This immersion involved ‘repeated reading’ of the data, reading the data in an active way, and searching for meanings and patterns (Braun & Clarke, 2006). During this phase, the researchers took notes and jotted ideas for coding. Phase Two involved generating initial codes. The codes “identify a feature of the data that appears interesting to the analyst, and refers to ‘the most basic segment,’ or element, of the raw data or information that can be assessed in a meaningful way regarding the phenomenon” (Boyatzis, 1998, p. 63). Based on the principles of inductive content analysis, multiple codes emerged from the exam wrappers. In Phase Three, the analysis shifted to focus on broad themes. A theme, as opposed to a code, captures something important about the data in relation to the research question, and represents some level of patterned response or meaning within the data set. The researchers sorted the codes into potential themes and began to consider how

they fit together. Phase Four involved the refinement of the potential themes previously created. During this phase, some potential themes were consolidated while others were separated depending on the data within the theme. In Phase Five, the themes were defined and refined. According to Braun and Clarke (2006), “define and refine” means “identifying the ‘essence’ of what each theme is about (as well as the themes overall) and determining what aspect of the data each theme captures” (p. 92). In this phase, the researchers thought about each theme in relation to the others and considered how each theme fit into the broader overall understanding of the data. Lastly, the themes were clearly defined by articulating what it was, and was not, and were formalized for reference in the results and discussion.

Trustworthiness

To ensure the trustworthiness of survey data analysis, the authors used the inter-rater reliability (IRR) test by Miles and Huberman (1994). Inter-rater reliability is ‘a numerical measure of the agreement between different coders regarding how the same data should be coded’ (O’Connor & Joffe, 2020, p. 1). Following the initial measurement of IRR, the coders discussed the questions and codes were modified or created until researchers reached 80% consensus (Miles and Huberman, 1994).

One of the most common analytical techniques to enhance the credibility of a qualitative study is triangulation. Triangulation is

the use of different methods of gathering data or collecting data with different samples, at different times, or in different places (McMillan, 2008). The data collection occurred throughout the semester and the researchers utilized diagnostic test results, two exam wrappers, the analytics of the online program, a post-test, and a final survey to explore the research questions. To further increase the credibility of the study, the researchers chose to share the results using authentic student quotations. The students' voices were meaningful in understanding the role of metacognitive strategies in test preparation. Several data sources were drawn upon; therefore, the study had an acceptable level of trustworthiness.

Limitations

Limitations for this study included the lack of generalizability due to small class sizes, lack of student motivation, and incomplete data collection. For the private institution, less than 50 percent of eligible students elected to participate whereas at the public institution, 14 percent of eligible students participated. The authors perceived a possible lack of student motivation expressed through limited time spent using the online program. Because the pilot course was a non-graded, non-credit course and the students were not required to pay for their exam, they may not have put forth optimal effort. A final limitation included incomplete data collection. For example, not all students completed a post-test due to lack of participation and poor attendance in the course. Students

also showed limited self-regulation if they chose to complete the online preparation program independently.

Analysis of Data

Testing Data

To address the first research question, "What is the impact of using strategies, such as alignment of test competencies with study materials and metacognitive exam wrappers in helping students prepare for high-stakes testing?" the authors analyzed student data from the online program. The data for each individual student is found in Table 3.

Table 3.
Pre-Post Test Results

Student	Completion Type	Test Type	Subject	Pre-Test Score	Post-Test Score	Total % of study guides completed
1	Self-Guided Pilot Course	OAE	Math Middle School	n/a	72	73
2	Self-Guided Pilot Course	OAE	Math Middle School	40	56	58
3	Self-Guided Pilot Course	OAE	AYA Social Studies	74	n/a	46
4	Pilot Course	Praxis Core	Praxis Math	52	63	55
5	Pilot Course	Praxis Core	Math	n/a	63	32
	Pilot Course	Praxis Core	Readings	n/a	82	73
6	Pilot Course	Praxis Core	Math Praxis	46	64	100

Student	Completion Type	Test Type	Subject	Pre-Test Score	Post-Test Score	Total % of study guides completed
7	Pilot Course	Praxis Core	Praxis Writing	50	63	100
	Pilot Course	Praxis Core	Praxis Reading	41	n/a	34
8	Pilot Course (Withdrew from course)	Praxis Core	Math	n/a	n/a	2
9	Pilot Course	OAE	English	74	n/a	50
10	Pilot Course	OAE	AYA History	66	80	29
	Pilot Course	OAE	Prof Know	80	n/a	18
11	Pilot Course	OAE	AYA History	60	64	40
12	Pilot Course	OAE	AYA History	72	74	42
13	Pilot Course	OAE	M.S. History	60	62	14
	Pilot Course	OAE	Prof Know	82	n/a	47
	Pilot Course	OAE	Found of Read	66	n/a	35
14	Self-Guided Pilot Course	OAE	Secondary Math	76	60	60
15	Self-Guided Pilot Course	OAE	Secondary Math	96	98	98

Observations from this data are as follows:

1. Five out of 10 students who took a pre and post-test increased by 9% or more (Students 2, 4, 6, 7, and 10)
2. Of the 15 students in this study, three scored 50% or less on at least one of their pre-tests, identifying a significant lack of conceptual understanding. All three of these students (Students 2, 6, and 7) attempted the state test. Student 2 failed twice,

Student 6 passed on the second attempt, and Student 7 failed three times. When analyzing the program usage for these students, Student 2 completed 58% of the course, Student 6 completed 100%, and Student 7 completed 100%.

3. There were four students who did not complete a post-test (Student 3, 7, 9, and 13). These students were disengaged at the end of the course or began studying for a second assessment and did not have time to complete a post-test before the course ended.
4. Student 14 showed a decrease in the post-test score due to not having enough time to complete the entire test in one sitting. This student worked full-time, was a full-time student and struggled to find time to use this program regularly.
5. All students showed significantly less than three hours a week spent in the program.
6. One student withdrew from the course (Student 8).

Diagnostic Exam Wrapper

To address the second research question, the researchers reviewed the survey data from students' diagnostic tests and their exam wrappers after completing the pre and post-test. The qualitative analysis of the diagnostic exam wrapper showed evidence of metacognition. The themes that emerged from the data included: unexpected or expected results and plans to use a specific study strategy. This section will describe students' perspectives as

they considered their initial diagnostic test results. Only 10 students were able to complete the diagnostic exam wrapper because completion of the post-test was required.

Of the students who responded, many were surprised by their diagnostic test scores (both positively and negatively) due to over or under-estimating their abilities. To illustrate the essence of over-estimating their abilities (n=3), one student expressed "This was a good wake-up call to realize I don't remember everything I thought I did." Other students under-estimated their abilities (n=3), sharing that "They [the scores] honestly impressed me because I thought I knew nothing." If students were not surprised with their results, they tended to show a neutral attitude toward their scores (n=5). For example, students expected results due to their current or past experiences and circumstances. One student stated, "I was not super surprised because it has been a while since I have taken a math course." While another student expressed, "I knew what questions I would get wrong, for the most part." Overall, students did not illustrate strong metacognitive awareness when it came to understanding their own content knowledge.

The thematic data analysis also showed that students often chose the test they wanted to prepare for (if they had more than one) based on their perceived understanding of the subject matter. Some chose the test because they felt confident in the subject matter (n=4) and stated reasons such as, "I took the math diagnostic test first

because I thought it would go better than the reading." Others chose to begin with their more challenging area of study (n=4); "I chose this one first because it is math and math is my worst subject. So, I wanted to get it done and over with." Differences in choice for test preparation came down to confidence levels, prior knowledge, and prior experiences with the content.

When analyzing how students planned to use what they learned from the diagnostic test results, students suggested a variety of strategies they felt would help them achieve success. Some students expressed specific strategies to prepare (n=6). For example, "Based on my results, I will plan on reviewing the economics portion as this is the area where my knowledge seems to need review." Another student stated, "I will probably focus more on broad view topics instead of tiny details, but still focus more on world history." Other students were vague in describing their study plan (n=5), "I will study longer and harder." Another student mentioned, "It will definitely encourage me to prepare more than I thought I needed to." In addition, there were some students who did not have a study plan but focused on positive thinking (n=2); "I think this will help me a lot," or "I will continue with this course in hopes of passing my exam." Many students did not have a specific study plan but expressed an awareness that they needed to prepare based on their diagnostic score results.

Post-Test Exam Wrapper

After 13 weeks in the program, students took a post-test to assess their knowledge and reflect upon their progress and growth throughout the course. Not all students were able to complete their post-test due to attendance, lack of participation, or poor time management. Those who were completing the program in class did not always attend, and those who were working on their own did not always follow the directions or hold themselves accountable. Time management was a common theme throughout the students' reflections. Overall, students were aware of the limited amount of time they spent productively working during the course. Students were aware that they did not complete the three hours per week allotted for test preparation using the online tutoring program and expressed multiple reasons for the lack of time spent. For example, one student stated "I personally tried to stay on task while in the course however, being a leader and resident assistant on campus sometimes I would have to fill out emails quickly or send out information," while another student stated "I wanted to pace myself so I would do like 5-10% of the material each class period and use the rest of the time to work on other homework. I wanted to make the completion percentage increase about the same amount each week." One student mentioned the need to "Try to stay focused, stay off my phone, cut out an hour each day to work on it, if I don't

understand go back and look at the reading to show me how to do the problem."

Despite the minimal time spent using the online program, students' scores showed an over-all improvement. Students were able to recognize this progress and reflected upon how the course benefitted them. For example, students discussed an increase in confidence and understanding of content, and many appreciated how the exam wrappers guided them to identify their strengths and weaknesses. One student stated, "The online program had me revisit content that had faded due to time as well as go over concepts/periods that confused me." In addition, another student expressed, "I was exposed to more content so I was a little more prepared, but still have a ways to go."

Students chose to spend their time in the online program in the following manner: 1) doing practice problems, 2) viewing instructional content, and 3) reviewing with flashcards. In addition, a few students chose to take their own notes and used them to help review for the test. These study choices were made individually by students. Many students approached their test preparation by jumping to the practice problems/questions and would engage with the instructional content and flashcards only when they were unable to answer the questions. Students expressed that content knowledge was their weakness, but they often skipped the instructional content resources and went immediately to the

problem/questions without taking the time to learn the material first. The instructional content was what the students needed in order to make improvements, but they did not always take advantage of the available resources. These weaknesses may be why some students did not show much improvement (for example, students 11, 12, and 15).

Results/Findings

End of Course Survey

Overall, students felt supported by the instructional materials of the course. One student expressed, "I think the tutoring really helped because I was able to pass the math Praxis." They found the instructional materials in the study guides were aligned and noticed the consistency of the material with the testing competencies. The explicit alignment often helped students when they took the test. For example, one student mentioned, "The online program gave a lot of valuable information, and I was able to take my own notes. I also think the quizzes are beneficial because the wording is similar to the actual test."

Students expressed on the end of course survey that the structure of the pilot course was not compatible with their preferences and personal schedules. One student stated, "This semester was tough so trying to do the study guide outside class hours was difficult." Students also requested more interaction with others during class time and suggested that personal tutors be available during class.

They believed that the materials were overwhelming, which led them to complete less than what was expected. For example, one student stated "I struggled to stay focused the whole time. I also feel that there was so much content to get through for meeting only one time a week even though I try to work on it outside of class." Students also expressed that the seated pilot course meeting for three hours once a week was too long. One student suggested "cut the time in half so the students aren't staring at a computer for over two hours and make a plan for students if they don't finish what is required for that day."

The data showed that students were generally aware of their lack of study skills; yet, they could not articulate strategies to address their deficiencies. One student stated, "I thought I was doing really well in the online program, and I did not pass." In addition, they often did not set a study plan for themselves. When asked if having a checklist to complete each week would be helpful, students responded, "I do think this would have been helpful to keep me on track and motivate me," and "It would've motivated me to get more done." Another student recognized, "It [a weekly checklist] would've been good just to plan out time." This survey item showed a lack of self-regulation strategies by students in their test preparation.

Conclusion and Recommendations

In more than 40 states, the requirement to pass a licensure exam is a pre-service teacher's reality. Based on the data from this pilot course, several implications for educator preparation programs became evident. First, if a tutoring program is in place, strong conceptual understanding of the material needs to be emphasized. If students simply possess surface knowledge (e.g. mnemonics, memorized procedures), they will lack the ability to connect knowledge to complex applications requiring deeper knowledge. This is evident because students who started the course with very low pre-test and diagnostic scores struggled to be successful. In such cases, a test preparation program may not be adequate in addressing the educational needs of severe content knowledge deficits.

Students in this study were sometimes unaware of what they knew, did not yet know, and what they needed to know to pass the test. A test preparation course of this nature is effective in the sense that it pushes students to systematically review previously learned material and engage with materials specifically aligned to the test. For many students, a preparation course of this nature is needed because strategic preparation is not likely to occur without designated time set aside.

A second recommendation is for tutoring programs to strategically align the curricula to the specific objectives and

competencies assessed on standardized tests. Students within this pilot course recognized the test alignment within the online program as a critical facet of their preparation efforts. The direct alignment to the test allowed students to feel that their time and effort were well-spent. Knowing that they had access to and were studying the "right" content helped them feel more confident in achieving a passing score.

Although alignment is necessary, this recommendation alone does not ensure success on a test. It is not enough to merely provide access to test-aligned materials. A significant amount of focused preparation is also essential. It would be beneficial to integrate more explicit metacognitive strategy instruction into the course design. For example, students could be guided to set specific and attainable goals as they progress through the test preparation program. Although course grades and requirements for licensure should act as strong incentives and motivation for success, many students balance other classes, work schedules, and family life. Therefore, strategies to encourage self-regulation are also necessary within future test preparation courses.

The metacognitive exam wrappers utilized within this pilot course helped students to "see" their weakness and articulate steps that could address them. Although students identified some necessary changes and action steps, they did not often act upon their own recommendations. The researchers recommend that

students create an individualized action plan (with assistance if needed) to be more efficient and effective in their preparation. It is also recommended to incorporate interactive tutoring sessions which enable students to prepare together for the exams through peer tutoring situations. Lastly, the researchers highly recommend having an on-site instructor that not only monitors progress, but also shares study strategies, teaches notetaking skills, guides reflective activities, discusses metacognition and helps students be held more accountable and motivated to stay on track within the program.

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Appendix A

Exam Wrapper After Diagnostic Test

Complete after the Diagnostic Test:

1. Which Diagnostic Test did you take and why did you choose this content area to complete first?
2. What are your thoughts and perceptions of your diagnostic results?
3. How do your results compare with what you thought you knew?
4. Based upon your results, how will it affect how you prepare for the exam?

Appendix B

Exam Wrapper After the Post Test

1. What test were you preparing for and take: OAE or Praxis?
2. What content area (Middle school math, etc.)?
3. Approximately how much time did you spend preparing for this exam?
4. Compare your 1st Diagnostic score with this 2nd Score. Describe areas of improvement. Describe any areas where your score decreased.
5. What percentage of your test-preparation time was spent in each of these activities?
 - Reading/watching instructional content for the first time
 - Re-Reading/Re-Watching instructional content
 - Using Flashcards for the first time
 - Re-Visiting flashcards
 - Solving problems for practice
 - Reviewing your own notes
 - Reviewing outside materials
6. What aspect(s) of your preparation for this exam seemed different from your prior exam or test preparations?

7. Now that you have looked over your 2nd Diagnostic Test, estimate the percentage of points you lost due to each of the following:
 - Not understanding the question being asked
 - Not knowing how to approach the problem
 - Careless Mistakes
 - Lack of understanding of the concept
 - Other
 - Please specify:
8. Based on the estimates above, what are at least 3 things you will do differently in preparing for the exam? Please be specific. Also, what can we do to help you?

Appendix C

End of Course Survey

1. Describe the progress that you made from day 1 to today in the online program. What helped you make gains in the program? Or, what kept you from completing a test study guide?
2. This semester, as it was a pilot course, this was not required and you did not have to pay any fees for the program. Would you have paid out of your own pocket if you had the choice to use this as a study resource? Please explain your answer.
3. What did you like about the online study guides and why? Be specific (Instructional materials, flashcards, quizzes, practice tests, format, percentages/data, etc.).
4. Did you make it far enough to complete a practice test? If so, what was your strategy? If not, what obstacles stood in your way?
5. In what ways do you feel this course could be improved? Describe in detail why you feel this way.
6. This course combined both those taking the Praxis with those taking the OAE. Did you find that you were able to support each other? Thoughts on this combination?

7. Do you feel having a weekly checklist of what to accomplish each week in the program would have been helpful for you? If so, how, and if not, why not?
8. Did you feel like the questions you answered after taking the diagnostic tests helped you reflect on your strengths and weaknesses (these are called exam wrappers)? If so, why, and if not, why do you feel this way?
9. Did the exam wrappers help guide how you approached the study guides (for example, what sections you decided to complete first, etc.) or your study strategy? Please explain.
10. Compared to other times when you prepared for a test, how was using the online program similar? How was it different?
11. Was there any point during the program that you felt prepared to take the actual exam even though you had not completed the full study guide or any of the practice tests? If so, please explain. In addition, if you took the test without fully preparing, how did you feel it went, and what were your final scores (did you pass)?
12. If you were to give advice to other students using the online program to prepare for their exam, what would it be? Please be specific.
13. Any additional comments:

Practitioner's Corner: Going Off-Script: Using Improv in Peer Tutor Training

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Abstract

Learning centers and peer tutoring facilities often need ways to train their staff to work with students who find themselves dealing with anxiety, fear of failure, and many other issues. There is also a need for training in soft skills such as communication and empathy that will help students have a successful college career. This article applies concepts from improv, and its integration into one college's tutor training. It includes two of the improv games used and the tutors' reactions to participating in them. Whether used as icebreakers or regular sessions, improv games are opportunities to connect and communicate with others on a deeper level. They also encourage students to take risks and embrace uncertainty. A discussion of limitations and future directions follows.

Keywords: improv, empathy, peer tutoring, training, Alan Alda

Going Off-Script: Using Improv in Peer Tutor Training

Introduction

While working in learning assistance, I have seen students come in with anxiety, fear of failure, and many other situations. More of these students are coming in recently due to the COVID pandemic and online education. On another front, I am always looking for innovative ways to train my staff in communication, empathy, or various soft skills they need to help students have a successful college career. I pondered these scenarios and sought a viable solution, one that would prepare my tutors to meet students where they were, in all the uncertainty brought on by Covid-19 and risk aversion in younger generations (Cengiz et al., 2021; Dastan et al., 2021; Sifat, 2020; Tilak & Kumar, 2022), while also helping them become better communicators and empathizers.

I stumbled upon a method that seemingly fit the bill when I read Alan Alda's *If I Understood You, Would I have This Look On My Face?* As Alda discussed relating to other people, empathic and responsive listening, and navigating the unknowns of social interactions, it dawned on me that his go-to process, improv, might be a solution. Through integrating improv into tutor training, I thought the worst outcome would be that the tutors learn more about communication, and they get a laugh from the experience. This paper will describe empathy and improv as ways to ease both the crippling anxiety caused by uncertainty and the hesitancy to

take risks. It will also describe a few of the improv games used in our training and the tutors' reactions to participating in them. A discussion of limitations and future directions will follow.

Empathy

Empathy has been defined in many ways. van Berkhouit and Malouff (2016) defined empathy as "understanding the emotions another person is feeling, feeling the same emotions another person is feeling, or commenting accurately on the emotions another person is feeling" (p. 2). According to Riess et al. (2012), empathy is a "process with both cognitive and affective components which enables individuals to understand and respond to others' emotional states and contributes to compassionate behavior and moral agency" (p. 1280). In their review of 30 years of empathy literature, Eklund and Meranius (2021) found four themes in most of the articles they studied. The person(s) experiencing empathy understands, feels, and shares another person's world while maintaining self-other differentiation.

When people empathize with others, an emotional and mental connection allows the empathizer to understand or perceive what is happening in the moment for the other person. During this scenario, the empathizer must also be careful to avoid becoming too deeply engrossed in the other person's emotional state. The goal, in this case, is to become a detached observer and not necessarily a partaker. This concept stems from the work of Carl Rogers, a

pioneer in client-centered psychology and therapy (van Berkhout & Malouff, 2016).

Rogers initially believed empathy could be taught as a skill to upcoming therapists, but later noted its more instinctive nature (Davis, 1990). The debate on whether empathy can be taught is ongoing (Jeffrey & Downie, 2016). It can be traced back to 20th-century philosophers such as Edith Stein, who argued that empathy could be facilitated rather than taught (Davis, 1990). Heyes (2018) argued that empathy is a dual-system process wherein one stage of empathy is automatic, affective, and responsive to the feelings of others. The second stage is more cognitive, interpreting the feelings from the interaction. Accordingly, Heyes (2018) suggested that empathy is not an inherited trait but is a learned behavior primarily through social interaction.

Some studies have shown positive results in empathy training through using role-playing and reflective essays (Bas-Sarmiento et al., 2017; Cunico et al., 2012). Others suggest a more theatrical approach (Alda, 2018; Lewandowska & Węziak-Białowolska, 2020). Borrowing from the realm of theater and comedy, improv and its many games have been used across various disciplines to teach empathy, communication skills, collaboration, and creativity. Huffaker and West (2005) used improv games to help enhance learning business skills while Benjamin and Kline (2019) used improv workshops to foster confidence, teamwork, and

communication skills in tourism and hospitality education. Improv has also been used to teach soft skills such as active listening and avoiding distraction in marketing classes comprised of Gen-Z students, a demographic that some research suggests is lacking in both elements (Riley & Nicewicz, 2022).

Two disciplines that have used improv as an empathy teaching method for many years are counseling education and the medical industry. Bayne and Jangha (2016) suggested that the micro-skills foundational to the counseling profession, such as active listening, interviewing skills, and empathy as essential elements in counseling, can be promoted through improv. Farley (2017) considered improv a meta-counseling skill that helps counselors be more in the moment with their clients and less anxious about what may be said during a counseling session.

The medical industry has adapted improvisation techniques to fit its ever-growing need for health professional communication and empathy during interactions with patients. The moniker often used for this type of training in the health professions is medical improv. Watson and Fu (2016) proposed that during courses using medical improv, students are given the opportunity to experiment, “learning to quickly connect with others to work collaboratively, creating emotionally honest, unscripted interactions,” (p. 591) and learn behaviors such as risk-taking, spontaneity, adaptability, and teamwork. They also suggested that medical improv allows

physicians to become more comfortable with uncertainty through shifting from mere role-playing scenarios to unscripted and often surprising situations (Watson & Fu, 2016).

Gao et al. (2018) also evaluated the idea that medical improv helps with uncertainty and empathy in a scoping review of health professional education. Their analysis showed that improv can impact comfort with uncertainty, team-management, self-reflection, empathy, non-verbal communication, trust, and resiliency. Recent trends in preparing future medical professionals to be more empathic and better communicators have shifted from short seminars using improv to longer workshops (del Vechhio et al., 2022; Phelps et al., 2021) and even college electives for medical, nursing, and dental students (Kaplan-Liss et al., 2018). Whether within the health education sector or even regular college courses (Berk & Trieber, 2009), improv has been used to positive effect to help people learn to connect and communicate better with others while also increasing the practitioner's ability to cope with uncertainty.

Improv

So, what exactly is this improv, and how does it work? The popular comedy show, "Whose line is it anyway?" offers an idea of the spectacular array of games, situations, and outcomes improv can spark. But improv is not just about comedy. Huffaker and West (2005) used improvisation intending to create a conducive learning

environment where students "felt a strong sense of community, a high degree of group trust, and a willingness to take risks in front of each other" (p. 857). Berk and Trieber (2009) outlined several principles of improvisation, namely that it builds trust and encourages acceptance, attentive listening, and spontaneity while also helping develop nonverbal communication. Students and staff may share a laugh while performing an improv game, but the aim is for a more lasting effect.

Improv can help students overcome the anxiety of "what's next?" by encouraging them to live more in the moment and accept what life throws at them. In that regard, Alda (2018) believed that "Life, of course, is an improvisation. You don't know what's coming next" (p. 87). When most schools quickly shifted to online formats during the Covid pandemic of 2020, students worldwide experienced increased anxiety brought on by uncertainty and isolation (Cengiz et al., 2021; Dastan et al., 2021; Sifat, 2020; Tilak & Kumar, 2022). Improv training, over time, increases a person's capacity to handle not knowing what's next. Improv serves as a kind of inoculation in several ways, but this essay will focus on two specifically: spontaneity and a "yes, and..." mentality.

Spontaneity

Improv pioneer Viola Spolin (1999) noted that spontaneity is about freeing oneself from the chains of expectation, both past and present. She stated:

Through spontaneity we are re-formed into ourselves. It creates an explosion that for the moment frees us from handed-down frames of reference, memory choked with old facts and information and undigested theories and techniques of other people's findings. Spontaneity is the moment of personal freedom when we are faced with a reality and see it, explore it and act accordingly. In this reality the bits and pieces of ourselves function as an organic whole. It is the time of discovery, of experiencing, of creative expression. (p. 4)

Accordingly, Spolin (1999) also expressed that while embracing the spontaneous nature of the game, a participant can use creativity to "meet any crises the game presents" (p. 5). In this way, improv solves problems, namely the problem of crisis. Through the spontaneous environment found in improv, students are free to overcome their fears and face the danger of the unknown, while guided in a safe, humane setting. Spolin (1999) noted that if students accept the "rules of the game" (p. 6), they are liberated from authority, and awakened physically, intellectually, and intuitively. The main rule of the improv game is "yes, and..."

Yes, And...

"Yes, and..." has been considered a key concept in improv, which permeates effective communication and positive outcomes in social interaction (Kaplan-Liss et al., 2018). David Fessell, a medical doctor and proponent of improv, synthesized the concept of "yes,

and..." saying, "'Yes' means to accept or affirm what is offered to you by others; 'and' means to contribute something new that builds upon that offer" (Mehta et al., 2021, p. 263). In practice, "yes, and..." is about accepting whatever is thrown into the mix and running with it. This concept implies that a participant should keep the action moving without blocking or denying what other players say or do (Alda, 2018). The "and" part takes acceptance further by constructively adding to the conversation or situation. This contrasts with "no" and even "yes, but..." both of which stop the flow. During this "yes, and..." interaction, the participants embrace each other's humanity and feelings. "Yes, and..." encourages empathy.

Improv facilitates empathy

Alda (2018) suggested that empathy was a byproduct of improv. He discussed several ways in which improvisation allows empathy to grow, namely through relating, and responsive and empathic listening. Relating is about embracing the humanity of the other person. According to Alda, relating is "being so aware of the other person that, even if you have your back to them, you're observing them. It's letting everything about them affect you; not just their words, but also their tone of voice, their body language, even subtle things like where they're standing in the room or how they occupy a chair" (p. 10). The data taken in while relating influences the

participants. It affects how they respond to each other, leading to another empathy element: responsive and empathic listening.

Improv inspires responsive and empathic listening by putting the participants in each other's shoes, which is the first step toward empathy. While going through improv sessions himself, Alda (2018) noted an incremental transformation stating that the "games connected each of us to the other players in a dynamic way. What one player did was immediately sensed and responded to by the other player. And that, in turn, created a spontaneous response in the first player. It was true relating and responsive listening, which, I've come to realize, is necessary on the stage and in life as well" (p. 8). Responsive and empathic listening means being acutely aware of what the other person is saying, verbally and nonverbally, so real conversation occurs. This contrasts with the way many individuals do not truly listen during a conversation but wait for their chance to talk instead. McBride et al. (2018) noted the positive outcomes of training their writing center consultants in empathetic listening and responding. The training strengthened their consultants' "understanding of how to reduce anxiety for students and how to set up a writing consultation that recognizes the unique cognitive and emotive needs of each student" (n.p.).

The literature on the use of improv in the medical and counseling professions suggests that improv is useful for interactions where there might be a hierarchical dynamic, i.e.,

doctor/patient or counselor/client (Bayne & Jangha, 2016; Farley, 2017; Gao et al., 2018; Kaplan-Liss et al., 2018; Mehta et al., 2021; Phelps et al., 2021; Watson & Fu, 2016). While peer tutoring does not have the same intensity, there is generally a hierarchical structure wherein the tutor possesses more knowledge of a content area than the tutee. Hancock and Gier (1991) argued that counseling and college peer tutoring were closely related as helping others work through their problems. I want to be careful not to suggest that peer tutors are equipped to be counselors to other students or offer medical advice. Still, if improv has utility in helping professions, it should also be beneficial in peer tutor training. Considering improv's effectiveness in the classroom (Berk & Trieber, 2009; Huffaker & West, 2005), in writing centers (McBride et al., 2018), and in life (Alda, 2018; Spolin, 1999), it makes sense to use it in peer tutor training. The benefits abound, from facilitating empathy, encouraging spontaneity, developing communication skills, and building trust between individuals. The following section is a brief survey of using improv in a tutor training setting.

Using Improv

In their scoping review, Gao et al. (2018) found several elements that help improv sessions be more successful. They suggested beginning with an orientation to improv and how it might help the tutors in their roles. They also suggested ending with a debriefing and reflection on what was learned through the improv game or

session. I use this model in our tutor training. Starting with a brief introduction about the usefulness of improv in alleviating many issues tutors might face in a tutoring situation, I then describe the type of game we will use. There are many games, some with more moving parts than others. I tend to use games that do not require any props or a large open space due to our center having many tables and other items in the way.

After discussing the purpose of using improv with my staff, I shift into an activity to get the tutors' creativity moving. This also means loosening up their minds and bodies. If the body is too rigid, the mind is not far behind. I have them do basic theater warm-ups, including vocal noises, hip twists, and exaggerated face movements. This process generally gets a few laughs. That is a good sign that the tutors are starting to get into the right frame. There will likely be a few who are nervous and hesitant to engage. Performing in front of others can incite anxiety, but the warm-ups and orientation to improv help lessen this response.

Once the tutors are ready to move forward, I get into the improv games. While there are numerous games in Spolin's (1999) book, I use two mainly, alternating them between semesters. The games I use are called *environment* and *mirroring*. They serve two different functions. The environment game is conducted in a small group setting wherein the tutors interact with each other and their made-up environment. The mirroring game is dyadic, with two tutors

facing each other and working together. Mirroring has been used to foster empathy in counselor education (Bayne & Jangha, 2016) and for medical students (Kaplan-Liss et al., 2018).

Environment

In the environment game, I will sometimes assign the small groups (usually 3-5 tutors) a particular place where they are to interact (soccer stadium, forest, deserted island, moon, etc.). At other times, I have one of the tutors designate where they are to start the game. An example scenario is the group acts as a forest. One tutor may take the role of a deer, while another may become a tree. The scenario can use dialogue or be completely silent. This game also has varying intensity levels depending on how comfortable the tutors become with it.

One of the major reasons for using this game is to ground the tutors in the present and to get them focused on the others in the group. Bruce Hunter, an alumnus of the famed Second City improv group, wrote that "Teaching environment for me is a way to stop the students from thinking about stuff that is going on somewhere else, like another galaxy or even another level of consciousness" (Libera, 2004, p. 14). The environment dictates what the tutors can and cannot do as they interact with the location. The environment also encourages the participants to engage their senses and describe or depict what they see, smell, feel, or touch. This process sparks creativity, spontaneity, and teamwork.

Mirroring

During this game, one tutor begins as the leader while another follows. The leader moves randomly and slowly while the follower “mirrors” the leader’s movements, whether it is a raising of the hand, a leaning of the head, or a step in a given direction. Once the tutors find a working rhythm with one leading and the other following, I have them stop and reverse their roles. The leader becomes the follower and vice versa. Again, once they establish a connection and a cadence, I stop the action. The last phase is for neither of the tutors to be a leader or follower. They must now move in unison, sometimes painstakingly slow, to ensure they remain in sync.

The mirroring game is one where empathic and responsive listening occurs, not with the ears but with the eyes. The leader must slow the pace so the follower can follow. The responsibility of connecting is on the person in the hierarchical position. This reality bears on communication of many kinds. Alda (2018) suggested that “The person who’s communicating something is responsible for how well the other person follows him... This is at the heart of communicating: If I tell you something without making sure you got it, did I really communicate anything?” (p. 30). One of Alda’s examples for this concept in the introduction of *If I Understood You* was a visit to the dentist. His dentist told him there would be some “tethering” (p. xiv) while holding a scalpel near his mouth before

performing a procedure. The mention of tethering without context or explanation alarmed Alda. Mirroring emphasizes this dynamic and forces the leader to slow down the process ensuring the follower understands what is being communicated.

Debrief and reflection

I follow up both games with a debriefing and reflection based on recommendations in Gao et al. (2018). In this section, I ask a series of questions to gauge the response to using improv. When I asked *what did you enjoy most about tutor training?* some of my tutors said they enjoyed the improv, with one commenting that it “helped relax the environment.” I usually follow that question with *what did you enjoy least about tutor training?* I generally get several who dislike the improv games, but it is mostly due to improv getting them out of their comfort zone. One noted that it was “awkward, but fun.” Another stated, “While I did have fun and understand why we did them, the leader-follower and similar activities were a bit uncomfortable. Still, I appreciate them because I know that was the point.” A few comments in recent training suggest that, despite its discomfiting appeal, improv may be working. When asked, *what did you learn during tutor training?* one tutor said, “To be relatable.” Another commented that the improv encouraged “new ways to think about people.”

These responses and other anecdotal evidence reveal our tutors’ awareness of the purpose and possible effects of using improv

during training. The tutors may be less aware of the intrinsic value in the games, though. Team building, risk-taking, and inoculation against anxiety are not necessarily conscious endeavors that a student can readily identify or name in the moment.

Limitations and Future Directions

As much as I have seen the benefit of using improv in our training, I am aware that it is not a panacea. One of the issues of improvisation is that it takes considerable time and practice to manifest the optimal results, a problem noted in a review of *If I Understood You...* (Mangan, 2018). Alda (2018) reported the learning curve for immediate empathic communication was steep but worth it, whether as an actor in his case or as a regular person just trying to get a point across. In our case, I try to implement an improv game into most tutor trainings we have. Understanding cumulative effects over time, I hope my tutors will at least be exposed to the basics through their tenure with us. This expectation is like medical improv, wherein the students may experience improv over several months or maximally over a couple of years.

I intend to continue using improv games in future tutor training, though I may add more games. The improv games are a great way to get the tutors out of their seats and into spontaneous action. Improv also encourages behaviors such as relating, and empathetic and responsive listening (Alda, 2018). Whether they are used as icebreakers or regular sessions, improv games are opportunities to

connect and communicate with others on a deeper level. They also encourage students to take risks and embrace uncertainty, outlooks that inoculate a person from anxiety. I recommend improv as a way to spice up tutor training, staff team-building, or any other training scenario. Apply the principles from improvisation (spontaneity and yes, and...) to life. There's no script after all.

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"Now I Know Where to Start": Results of a Diagnostic Orientation Session for Academics

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Abstract

In this article, we will describe the design of a diagnostic orientation session offered to university academics by a faculty-based academic writing center. The session can serve as a model for identifying academics' needs in mastering English for Research Publication Purposes. We aim at sharing practical activities that successfully worked as a less traditional form of needs analysis. We will discuss the value of such a model to both participants, who get personalized feedback and recommendations for enhancing their academic growth, and instructors of the writing center, which provides support services to academics by designing tailored learning programs in English.

Keywords: Needs analysis model, writing center support services, academics' writing challenges, English for research publication purposes, pedagogical design

"Now I Know Where to Start": Results of a Diagnostic

Orientation Session for Academics

Introduction

Globally, academics have been experiencing pressure to publish (Lillis & Curry, 2010; Sarewitz, 2016), which has led to a rapid development of English for Research Publication Purposes (ERPP) (Cargill & Burgess, 2008; Flowerdew, 2015). Recently, a considerable body of literature has grown around the theme of supporting researchers in their "writing journeys" (Gallagher, 2017, p. 24) and helping them communicate more effectively in an academic context (Eodice & Cramer, 2001; Cho, 2009; Chen, 2011; Geller & Eodice, 2013; Jamjoom, 2021). To make informed decisions about what kind of programs to offer academics, course designers have to carry out a thorough analysis of academics' needs. While everyone agrees on the importance of needs analysis (Jordan, 1997; Klimova, 2015; Yuvayapan & Bilginer, 2020), there are different opinions as to what instrument can be the most effective within each educational context.

As the core of any educational program (Hutchinson & Waters, 1987), needs analysis is mainly carried out to determine the writing needs of a small number of undergraduate- and graduate-level students, using such instruments as self-reflection questionnaires (Yuvayapan & Bilginer, 2020), qualitative surveys (Lappalainen, 2016), target text analysis (Li, 2006), or interviews (Flowerdew,

1999; Denny et al., 2018). Studies focus on language needs (Zohoorian, 2015), the conceptions of academic writing (Ma, 2018), the needs of postgraduate students connected with writing in particular disciplines (Al-Khasawneh, 2010; Huang, 2010; Cai, 2017), and some specific issues, for example, the difficulties with writing a thesis (Bitchener & Basturkmen, 2006). We can also find a few studies that present an overview of academics' perceptions of their writing needs (Gea-Valor et al., 2014; Durmuşoğlu Köse et al., 2019; Frumina & West, 2012; Belyaeva, Kuznetsova, Nikiforova, & Suchkova, 2021), demonstrating the necessity for academics to improve their language proficiency in English.

Traditionally, teaching ERPP to academics and doctoral students is informed by the target-situation analysis rather than the learners' lacks, needs, and wants (Hutchinson & Waters, 1987). Existing research recognizes the approaches based on genre analysis with the focus on rhetorical moves, disciplinary conventions, and corpus analysis as successful (Swales, 1990; Cargill & O'Connor, 2006; Reid, 2010; Burgess & Cargill, 2013; Anthony, 2016; Englander & Corcoran, 2019). However, the generalizability of these approaches may seem problematic without considering academics' individual challenges. Flowerdew (1999) highlights that "attention needs to be focused on individual scholars because it is important to discover the perceptions, problems, and strategies used by NNS scholars in writing for publication in English" (p. 246). Here the question arises:

How can the learning / writing center make needs analysis informative not only to course designers but also beneficial for individual learners?

When conducting needs analyses, some course designers start with individuals, but they tend to focus on the data that are relevant to courses for a specific context (Zohoorian, 2015; Gea-Valor et al., 2014) or to general peculiarities of academics' development as effective communicators. In the latter case, researchers are mainly interested in tracking the individuals' development, documenting their journeys, analyzing factors enabling and hindering them, or paying special attention to the impact of explicit instruction (Li et al., 2018; Martin et al., 2014; Bazerman et al., 2012; Cameron et al., 2009). It seems that, to our knowledge, none of the studies presented a needs analysis model that would not only reveal learners' needs and characteristics, but also become an activity beneficial for the participants.

To fill this gap, the paper aims to generate fresh insight into learning about academics' needs in a less traditional form – we offer a series of engaging activities reflecting a new needs analysis model, which we have called the Diagnostic Advisory Orientation (DAO) model. It includes three major components based on the pedagogical objectives set: (1) **diagnostic** – to identify individual language needs; (2) **advisory** – to provide personalized recommendations for further development; (3) **orientation** – to raise

awareness of available professional development opportunities. These three components are intended to be beneficial for the session participants. The session results also empower the center, providing the following opportunities, or three Ps: to create a profile of the target audience (profiling component); to meet the clients' needs by offering customized learning programs (planning component); and to reach more clients (promotion component).

In this article, we will describe the orientation diagnostic session *Finding Your Route to Research Writing*, which was facilitated at the Academic Writing Center (AWC) of HSE University from 2018 to 2022. Designing the session, we set the objectives to identify academics' level of proficiency, to learn about their language strengths and challenges, and to collect the topics they are interested in for further development of their academic skills. The session activities were designed to reveal directly and indirectly participants' academic skills, which served the objectives of the session.

The suggested pedagogical design for analyzing academics' needs has worked well as a diagnostic and planning tool for the AWC, enabling it to provide targeted support to academics in writing for publication. The data helped the Center to make informed decisions about creating courses and workshops to meet the needs of its clients. Additionally, each participant received individual feedback on their language strengths and weaknesses,

tips for improvement, and recommendations about which courses to choose.

The importance and originality of such a needs analysis model are that it explores less conventional activities for assessment in a stress-free atmosphere, which is conducive to academics' further development. This model may pertain to many other academic contexts as it places value not only on instructors designing courses or institutions organizing such courses, but also on individual participants, helping them to construct their routes to professional development.

The paper presents the information about the pedagogical design of the session, including materials description, preparation stages, and procedures; data collection and analysis; session results, including academics' levels of proficiency, and writing challenges voiced by academics themselves and observed by instructors; and participants' feedback and requests for the AWC.

Session Design

The diagnostic orientation session for academics *Finding Your Route to Research Writing* has been run at the AWC since 2018. The session aims to identify researchers' language level of speaking and writing in English, analyze their language needs, and identify challenges they face while writing for publication.

This face-to-face session lasts three academic hours (equal to two hours 15 minutes). The recommended group size is 8-10 people per

group. It is important to create a safe environment and stress-free atmosphere, involving academics in engaging activities and interaction and, at the same time, ensuring a standardized procedure and applying an internationally recognized scale of evaluation.

Activities

The session consists of three creative activities in English (see the instructions for the tasks in Appendix). The activities have been designed in such a way as to obtain as much information as possible about the primary clients of the center – researchers – while engaging them in individual and group tasks. This allows not only assessing researchers' levels of oral and written proficiency but also receiving information about their experience of learning English, successes and failures, writing challenges and learning demands.

The first framed speaking activity, "Shaking Hands," serves as a warm-up and helps to create a rapport. It involves note-taking and an oral presentation organized as a role-play. Participants sit in a circle and introduce their neighbor pretending to be them.

The second speaking activity, "My Metaphor of Learning English," involves drawing a metaphor capturing participants' perceptions of the language learning process, along with the roles of the teacher and the student. Metaphors have been chosen as they can serve "an important instrument of analysis" of experiences and can also help to define the way people act and plan their learning

strategies (Oxford et al., 1998, p. 45). Each participant in turn shows the drawing and describes it for 2-3 minutes. The other participants listen and take notes on the handout about the learning process, teacher and learner roles. After the presentation, participants are encouraged to ask questions and give comments.

The third activity, "My Writing Challenges," is framed as a response email to a survey conducted by the AWC. It resembles one of the written tasks in the Business Language Testing Service exam (BULATS, 2017). Participants are supposed to cover three topics: their own experience of writing in English, primary difficulties, and writing needs. We agree that "it must be worth asking precisely what is difficult about writing and, especially, about writing in a second language" (Brookes & Grundy, 2009, p. 11).

As can be seen, the content of each activity has been designed with the purpose of analyzing academics' difficulties and demands so that the center could cater to its clients' needs better.

Preparation

The preparatory stage comprised several steps:

Step 1: Materials design. The whole set of materials comprises a PowerPoint presentation and handouts, detailed guidelines for instructors, the assessment scale, a template that facilitates giving individual feedback after the session, and instructions for the final instructor's report that should be submitted to the center.

Step 2: Training instructors. The training was focused on the procedure of delivering the session, instructors' behavior, and setting and applying the standard of assessment. For assessment of participants' performance, instructors were trained to use the BULATS global descriptors (BULATS, 2017), where each band corresponds to a certain level of the Common European Framework of Reference (CEFR, 2001). They had to assess task achievement, text organization, and language variety. Instructors were encouraged to note not only typical language problems, but also strengths to avoid deficit model thinking (Smit, 2012).

Step 3: The first run of the session (2018) and observation of instructors at work. The observation stage was important to make sure that all participants had equal opportunities to perform and that the procedure was consistent across all the groups.

Step 4: Organization. Academics' participation was voluntary. The letter of intent stated that they would participate in some activities in English and get personalized feedback on their performance and recommendations for further development of their skills. The sessions were scheduled in parallel; participants were grouped randomly, neither age nor their research field was taken into consideration. The seating was arranged in a circle with the instructor as a group member.

After-Session Activities

As one of the objectives of the session was to provide each participant with personalized feedback about their level of English and readiness for academic communication, instructors had two weeks to write the feedback according to an agreed framework. The feedback consisted of comments about strong points and areas for improvement, recommendations, and suggestions for the AWC courses.

Instructors also provided a report to the center, which included the analysis of participants' language problems, and summary of their needs and requirements. Participants, in turn, were supposed to go through a two-stage project evaluation procedure: to comment on the materials and procedure (immediate participants' feedback) and to evaluate the session's usefulness (end-of-the-session feedback).

Data Collection and Analysis

Sources of Data Collection

To create a group profile (age, gender, and discipline areas), we used the information in the session online registration forms, which the participants filled out before the session, and participants' notes for Activity 1 "Shaking Hands," which were collected after the session. To learn about the level of proficiency, we used the instructors' reports that included marked levels of speaking and writing and the summary of typical problems in each group. We

also used participants' written papers (Activity 3) to collect requests for the Center and summarize voiced writing challenges. To get participants' feedback on the value of the session, we created two brief surveys (immediate and end-of-the-session feedback). The immediate paper survey was filled out by all participants, but the end-of-the-session online survey was filled out by only 46 % of participants.

The immediate feedback form consisted of two questions in which the participants had to evaluate from 1 to 10 (where 10 is the highest score) each of the three activities of the session and the instructor's performance.

The end-of-the-session delayed feedback included one evaluation and two open reflection questions. Participants were asked to assess the quality of individual language feedback they received from their instructors on a scale from 1 to 10. The second question required participants to reflect on the session and state whether and how it will affect their language development strategy. Finally, the participants had an opportunity to comment on the session and provide general feedback on how it was run.

Participants

Our research spanned the years 2018-2022 with a total of 329 participants. They are a diverse group of HSE University researchers, who differ both in previous language training background, particular language needs, and discipline areas, but all

of them are members of the high-potential research team of the university faculty, which is a selective talent pool program embracing new members every year. They are all encouraged to publish their research and are exposed to a variety of opportunities for professional development.

The sample included 48% males and 52% females of ages ranging from 20 to 49 (48% – aged 26–31, 34% – 20–25, 12% – 32–36, and 6% – 37–49 years old). A variety of research discipline areas was represented: 23% – social sciences, 22% – humanities, 21% – business, 15% – applied sciences, 12% – natural sciences, and 7% – mathematics.

Results of the Session

Results from the research represent 329 academics across five cohorts (2018-2022). As the purpose of the paper was to share a new model for needs analysis, we will focus only on those findings that can serve as success indicators for the model and can help the Center to make informed decisions about learning programs, i.e. academics' levels of proficiency, a brief overview of writing challenges, and a summary of requests to the Center. Finally, we will share participants' evaluation of the session.

Level of Language Proficiency

The majority of the participants demonstrated B2 level and above (see Table 1). While participants' speaking skills were also evaluated, for the purpose of the current study, the focus is on

writing skills only. The analysis of participants' performance shows that the majority of this high-potential group of the faculty are capable of producing an academic text (both oral and written). The results are consistent throughout the years.

Table 1
Level of Language Proficiency According to the CEFR (2018-2022)

Data	A1	A2	B1	B2	C1	C2
Speaking						
%	1%	7%	15%	43%	26%	8%
Number	2	23	50	141	86	27
Writing						
%	1%	7%	23%	41%	22%	6%
Number	5	24	75	133	71	21

These results give us a clear picture of what level the majority of our clients are. Although the B2+ level has been the most common, the Center needs to cater to the needs of learners with lower and higher levels. We can predict which of the existing courses will be in demand, and which we need to adjust to the required levels of proficiency.

We are clearly aware that participants' levels of proficiency are approximated. Although not all instructors are certified examiners, they are all professional English teachers familiar with the CEFR descriptors and with a wide experience of assessing students' papers. The instructors have been carefully selected and trained in

applying the assessment scale. Each year they have to undergo rigorous retraining both in assessing writing and speaking skills under the supervision of a certified examiner. As it was not the task of the study to officially certify participants' levels of proficiency, we were quite content with the results that show the approximate level.

Writing Challenges

One of the purposes of Activity 3 (which was a response email to a survey) in the session is to find out about the difficulties that participants experience while writing in English. We have analyzed the writing challenges from two perspectives: those mentioned by participants themselves and those observed by instructors while checking participants' writing.

Participants' voices. Among the challenges voiced by the participants are English syntax and academic vocabulary, articles, punctuation, and differences in academic writing conventions in English and Russian. No matter what level of proficiency participants have, they admit that they mainly struggle with lower-order language problems: vocabulary, grammar, and punctuation. Naturally, B1 level and lower learners mention a lack of language and wish their texts to be more accurate. The higher-level learners strive for more variety and an increase in language complexity to "shine academically." B2 learners are concerned with register issues and would like to become more aware of formal versus informal

norms in writing. Interestingly, neither lower nor higher than B2 level learners do not see register as a problem. We can hypothesize that better awareness about register comes with more exposure to the language and experience. The issue of clarity also seems to be important as many of the participants would like to "write in a native-like manner" and avoid the "Russian way of writing." "Fear of not being understood" has been experienced by 50% of B1 level learners, and 15% and 13% of B2 and C1+ learners respectively.

Instructors' voices. Instructors, having recognized accuracy problems, a limited number of syntactic structures, and a low vocabulary variety, are more concerned with higher-order challenges. Instructors observe problems with audience awareness and genre features (in our case it was an email); text organization: paragraphing, developing an argument, coherence and cohesion; and typical features of Russian academic discourse: deviations from the topic, long sentences, wordiness, and excessive use of passive constructions.

Instructors see the need to provide focused training on certain aspects of academic communication: organization of ideas, stating an argument clearly, formal text characteristics, and genre analysis.

Participants' Requests

Part of the writing task was to write specific requests to the AWC. Some of the requests are common for all level participants, for example, offering proofreading services and providing

psychological support for boosting self-confidence. However, there are certain requests pertaining to a certain level. As for A1-B1 learners, they ask to organize General English courses to develop speaking and listening skills. For writing, they would like to master translating skills, especially concerning research terminology.

B2 level participants request training on developing argumentation and reasoning skills. They are likely to participate in joint research projects and voice their need for developing communication skills, e.g. an email course, small talk practice.

C1+ level participants are concerned with acquiring strategies that can lead them to being more autonomous in their writing: how to cope with the writer's block, how to paraphrase and summarize, and how to self-edit their texts. They are also interested in writing specific genres: a literature review, grant proposal, conference abstract, etc., and they would appreciate support in enhancing their fluency of expression both in written and oral forms.

The analysis of participants' requests provides a source of topics for targeted learning programs. Of course, providing vocabulary and grammar support is essential for English as an Additional Language (EAL) learners, but they also need strategies to enhance their self-confidence.

Participants' Feedback on the Session

We collected participants' feedback two times: right after the session we asked them to evaluate the activities themselves

(immediate feedback), and the second time after they received personalized recommendations (end-of-the-session feedback) to learn how useful the session was.

The participants evaluated the instructors' performance as 9.8 out of 10; the scores for the activities were very high, too: "Shaking Hands" – 8.6, "My Metaphor of Learning English" – 8.9, "My Writing Challenges" – 8.8. The participants praised the creativity of the tasks, interactivity, and involvement.

Answering the questions in the end-of-the-session survey, all participants appreciated a friendly stress-free atmosphere unlike the one in an official test setting. They pointed out that the session offered "enjoyable, fun" activities delivered in a "safe" and "relaxing" atmosphere, which proved particularly "important to those who still have a complicated relationship with the foreign language." The participants saw the session as a valuable opportunity to communicate with colleagues and self-assess their ability to get the message across: "good opportunity to think about your level and ways to improve it." Several participants noted that the opportunity to compare their level with that of their colleagues was valuable to them, as it enabled them to see what can be achieved.

After receiving individual feedback, the participants found it useful and informative, as it included not only each participants' strengths and areas for improvement, but also resources and

suggestions for further development. In general, the session appeared to be "an incentive" for most of the participants. They found it motivating for several reasons:

- identifying specific areas for improvement (e.g. increasing vocabulary range, keeping syntax relatively simple, text organization, cohesion);
- providing actionable recommendations in the form of AWC courses and resources: "Now I am planning to sign up for *Fundamentals of Academic Writing*; I didn't think the course was relevant to me"; "I had no strategy of improving English, now I know where to start."
- finding out proficiency level: some participants had their level confirmed; others found the results unexpectedly higher, which built their confidence ("I wasn't confident that I can write academic texts, but now I know that my level is sufficient"); still others felt that their level was lower than they had expected, so now they are willing to improve it ("Now that I know my level, I want to improve it").

The feedback clearly indicated that the participants became more aware of the AWC services: "I will take advantage of the individual consultations"; "I'll enroll in the courses of the AWC."

Conclusions and Final Comments

The developed session *Finding Your Route to Research Writing* is a less traditional form of needs analysis, which is based on the DAO

model (diagnostic, advisory, orientation). The session was tested between 2018-2022 and proved to be very informative. It has achieved the triple objective: to learn more about the needs of the HSE University Academic Writing Center clients (diagnostic screening of their language and developmental needs), to provide recommendations to the clients for mastering skills (providing advice for improvement), and to show participants various opportunities the university provides (orienting them in the abundance of services).

The success of the suggested session can be explained by its client-friendly design, engaging activities relevant for academics, and an individual approach to helping participants develop their learning strategies. Although preparing and running the session is time consuming, the results are worth the effort, which has been confirmed both by the extent to which our goals were achieved and the participants' highly positive feedback.

For participants it was a "bright and interesting" event. Participants had enjoyable writing and speaking practice and, at the same time, they learned about their strengths and areas for improvement. They received individual feedback and recommendations for mastering academic writing and speaking skills. As a result, many of the participants started thinking about their own plans for development.

Working with academics, who are busy and pragmatic, we take needs analysis seriously. The AWC strives for offering client-oriented services (Suchkova, 2022). Organizing the session, we regularly receive valuable information for adjusting learning programs to participants' lacks, needs, and wants. This leads to successfully widening the range of services, choosing appropriate topics for workshops, and developing effective learning materials for our clients, as "the most effective materials are those which are based on thorough understanding of learners' needs, that is their language difficulties, their learning objectives, their style of learning, the stage of their conceptual development..." (Jolly & Bolitho, 2011, p. 128). Apart from a broader range of services and more targeted programs, the side effect of organizing the session for new groups of researchers has been increased visibility of the Center in the university, which resulted in a greater number of clients.

The session consistently worked well for our context, so we believe it to be a good practice that is worth sharing. According to the Food and Agriculture Organization of the United Nations (FAO), a good practice is "a practice that has been proven to work well and produce good results, and is therefore recommended as a model. It is a successful experience, which has been tested and validated, in the broad sense, which has been repeated and deserves to be shared so that a greater number of people can adopt it" (2013,

p. 1). The diagnostic session *Finding Your Route to Research Writing* has potential for becoming such a model, as it can be adapted for a variety of contexts. Depending on the goals, the adaptations can include the following:

- Activities: questions in the activities can be adjusted to the target audience's expectations, background, and culture; reflection questions can be changed depending on the learning center goals; participants can be asked to answer different questions about the center.
- Feedback: participants' performance can be evaluated according to the criteria that would best meet the needs of the learning center; the recommendations can be aligned with the center goals.
- Organization: number of participants in groups can be made smaller; timing of adapted activities might need to be changed; the session can be run online or offline.

These adaptations will ensure that the session is fine tuned to the specific context and center requirements. Adapted sessions will produce results similar to ours as long as the new activities stay in line with the DAO model. They should retain an element of fun; include participants' reflection on their own needs, lacks and wants; and provide recommendations to the learning center. In turn, participants receive detailed individualized language and skills

feedback, which includes specific recommendations of the center resources.

This session has thrown up many questions in need of further investigation. A further study could assess the long-term effects of the session by tracking, for example, researchers who followed the recommendations and enrolled in the AWC courses. Deeper analysis of speaking performance would be a fruitful area for further work. A natural progression of this work is to analyze the metaphors shared by the participants and learn whether the attitude towards English (positive or negative) has any influence on the actual performance of the individual. A greater focus on written papers could produce interesting findings that account more for particular language issues academics of different levels of proficiency struggle with. It would add a greater degree of accuracy to the brief overview presented in this article.

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Appendix

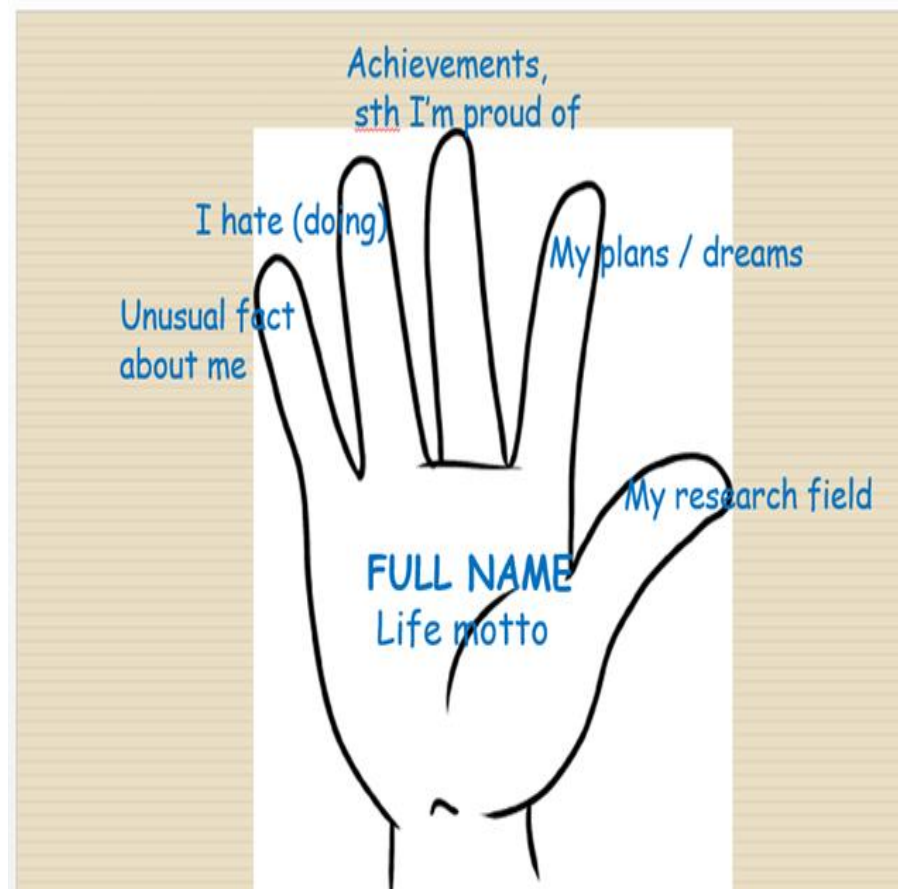
Diagnostic Session Tasks and Instructions

Activity 1. Shaking hands

Make an outline of your hand. Make notes: full name, life motto, plans, research field, achievements, something you hate doing, an unusual fact about yourself.

Exchange the papers and study the notes. Pretend that you are the person.

Introduce yourself. Feel free to add more information.



Activity 2. My metaphor of learning English

- Think of a metaphor of your experience of learning English.
- What can you compare the process with? What are the roles of teachers and the learner? (5-7 minutes)
- Draw the picture of your metaphor. (5 minutes)
- Present it to the group (2-3 minutes). Be ready to answer questions if there any (5 minutes).
- While listening to others, take notes: process, learner's roles, teacher's roles. Use the handout.

Activity 3. Writing challenges

To: HSE University researchers
From: Sophia Voronina, AWC manager
Subject: Survey about writing needs

...We are conducting a survey about the challenges you face when writing in English. I would be grateful if you could write back to me. This information is necessary to better cater for your needs. Thank you ...

You received a request from the manager of the Academic writing center. Please respond to it, writing an email of **150-180** words. You have **20** minutes. Write about

- your experience of writing in English
- the primary difficulties you face
- specific topics you would like to have training on at the Center

Quantifying the Impact of Peer Tutor Feedback on the Public Speaking Skills of Undergraduate Business Students

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Abstract

High-quality public speaking skills convey strong and effective communication, a critical professional and workplace competency that positively impacts personal lives as well. Skill acquisition and mastery improve public speaking confidence, which in turn reinforces the speaker's abilities. Improving oral communication skills requires instruction, practice, feedback, and revision. We wanted to measure the effect of peer tutor feedback on the public speaking skills of undergraduate Business students at American University. We asked assessors unaffiliated with our office to independently rate both drafts and final submissions of one-minute video submissions completed by students in various sections of a Management and Organizational Behavior course. Our experiment shows that peer feedback significantly improves the quality of the final presentation, and that the positive impact is the same for native speakers of English than it is for non-native speakers.

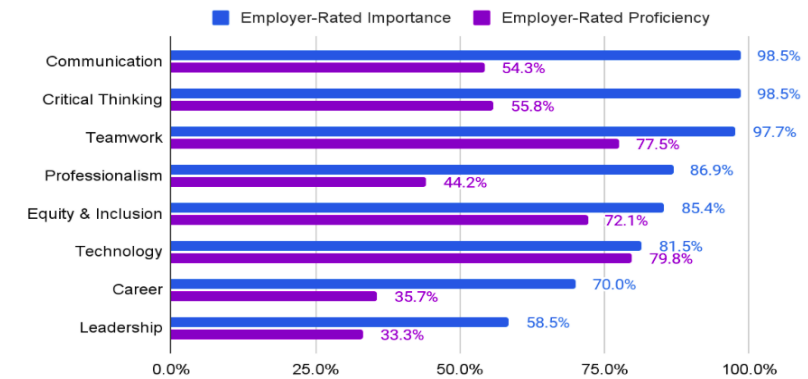
Keywords: peer feedback, peer review, public speaking

Quantifying the Impact of Peer Review on the Public Speaking Skills of Undergraduate Business Students

Introduction

Oral communication skills are frequently listed among the top workplace-readiness skills for students graduating from college and entering the workforce. The National Association of Colleges and Employers Job Outlook 2022 lists communication skills as tied with critical thinking as the skill that has the most value to employers; 98.5% of respondents rate both skills as important. However, though employers strongly desire their new hires to be skilled writers and speakers, the widest gap between importance and proficiency is in communication skills; though 98.5% of respondents rated the skill as important, only 54.3% of employers rated their incoming workforce as proficient (NACE, 2022).

Figure 1.
Importance vs Proficiency in Career Readiness Competencies



Note: Data from National Association of Colleges and Employers, Job Outlook 2022. Most of the literature surrounding peer review exercises examines written work.

Typically, students submit a draft of work for peer review. Next, peers offer feedback using assessment criteria. Students are then given the opportunity to revise and submit that revised draft of their work for review and scoring by the professor. Evidence suggests that peer review exercises for specific assessments positively impact final assessment grades (Althausen & Darnall, 2001; Simpson & Clifton, 2016). Furthermore, the data indicate that skill acquisition gained from engaging in a peer review exercise can be transferred to improve grades on subsequent assessments (Rust, Price, & O'Donovan, 2003). Since oral communication skills are more challenging to quantify, little research has been done to examine the impact of feedback on speaking and delivery skills.

We examined the impact of peer review in two specific ways. First, we examined peer review relating to oral communication

rather than written communication. Second, we examined the impact of peer tutors who have been trained on best practices in public speaking on the improvement of their peers' work. We hypothesized that peer review by trained student tutors will have a significant positive impact on the public speaking skills of their peers.

Methodology

Participants

The study was conducted at American University, a private federally chartered research institution located in Washington, D.C. American University caters to a diverse national and international student population. The participants were 30 students, respectively 20 native speakers and ten non-native speakers, which mirrors the native/non-native English-speaking enrollment in the Kogod School of Business. The course from which the assignment submissions were pulled is a 300-level course, catering primarily to sophomores and juniors ranging in general from 19-21 years of age. The Spring 2022 enrollment for this course was 184 students. Twenty-five students were dropped from the study because the professor required a student peer review, and we wanted to assess the impact of our Center's peer consultant feedback independent of other feedback. Another 25 students were dropped from the study because they failed to submit a draft of their video submission on time for comment by our peer tutors. While some of the students

who missed the draft submission deadline booked individual appointments with a tutor in our Center, we exclusively evaluated students who had all received their feedback in the same manner and at the same time. Once those students had been eliminated from the data set, we were left with a potential pool of 134 students. Next, the researcher determined which students had self-identified as either a native or non-native speaker when they enrolled in the Center's tutoring appointment tracking system. From those groups, a random sample was selected. Since the sample of 30 students represents almost one-quarter of the eligible pool, we can have a high degree of confidence that we have achieved "saturation" in the data, defined by Glaser and Strauss (1967) to be a judgment that no additional data would further develop the "properties" of an analytic category. In short, we do not believe that additional samples would yield substantively different results.

The student cohort can vary in the quality of their public speaking training prior to entering the course. Some students have extensive training in rigorous high school programs or as part of extracurriculars like Student Council or Model UN. Other students may have had little to no training as a public speaker. The Kogod School of Business does not require a business communications course as part of its degree program. Instead, the school has a Center for Professionalism and Communications, whose role is to provide instruction and feedback to students. Staff members are

invited by faculty primarily in the business core courses to guest lecture on best practices in public speaking skills. Trained peer tutors, who are student workers selected for their exemplary writing and speaking capabilities, are available for face-to-face or virtual tutoring appointments.

According to the National Survey of Student Engagement 2021, forms of connection that have historically relied on face-to-face interactions, such as accessing tutoring services, have declined at many institutions. Rather than relying on students to book appointments with our Center, we have expanded our partnerships with various core classes such as MGMT 353 Management and Organizational Behavior to provide a service called eCommenting. When we provide eCommenting, all students in a class submit first drafts through AU's Learning Management System (LMS) which currently is the Canvas platform. We return written comments within one week. It is through this eCommenting process that the students in this class received their peer tutor feedback. Thus, we are examining a cohort of average students, not a group that has already demonstrated a high level of engagement by seeking out our feedback.

The Center for Professionalism and Communications also provides various "flipped classroom" resources for students to use to improve the quality of their public speaking skills, but as Du et. al noted (2014), the success of a flipped classroom requires a "heavy

reliance on student motivation" (p. 17). Du et. al warn that "extra-curricular and curricular elements must be carefully integrated for learners to understand" (p. 19). Since the flipped classroom resources available to students to improve their public speaking skills are seen as ancillary, the danger is that students will engage with them either superficially or not at all.

Three raters were recruited to carry out the analysis and independently assess the quality of the submissions. The assessors are all staff members in the business school, but with no connection to the office that hires or trains the consultants who offered feedback to the students. One assessor comes from the Student Development staff, one from the Office of Career Engagement, and one from Academic Advising. Norming expectations were conferred in writing to each of the assessors.

Materials

Students submitted their short video presentations as Zoom recordings. Students were instructed to use a single slide to highlight their recommendation according to the following prompt:

For this individual assignment, you will roleplay an employee of a Fortune 500 company. Your company is considering a policy change. Senior management of the company wants your input, so it will view your ONE MINUTE Zoom video on the subject during its deliberations. Please create ONE collage-style PowerPoint Slide to use in your Zoom Video. Do

not take both sides of the issue. Pick one and take a clear stand! (Burnett, 2022)

Students submitted their draft presentations to the professor.

Approximately one week later, the students received written feedback from our peer consultants, using the following rubric:

Figure 2.

Peer Tutor Feedback Rubric for MGMT 353 Presentations

Criteria for Evaluation	Comments for improvement
Slide Design: Slides are visually appealing. Writing on slides is concise and style is uniform throughout the presentation. Includes a mix of graphics, charts, figures, pictures.	
Vocal Delivery: Voice recording is crisp, clear, and error-free. Pacing allows the speaker to complete the presentation within the 1 minute time requirement. Volume of the speaker is audible and words are enunciated clearly.	
Organization: Content of slides is organized logically, easy to follow, and ends with a compelling conclusion or call to action. Meets the time requirement (one minute)	
Clarity of Purpose: The purpose of this presentation is clear from the beginning with the "bottom line on top." Purpose is explicitly stated and is specific. Uses qualitative data and relevant facts to articulate the benefits to the company.	

Students then had four days during which they could re-record their video submission and submit for a final grade.

Procedure

As we prepared the research process and design, we downloaded, randomized, and anonymized the submissions. Each of the three evaluators received 60 submissions to assess but were

not told which were drafts or final submissions, nor which were submitted by native or non-native speakers. Evaluators were given a short rubric by which to evaluate the submissions. They had three weeks to complete their assessment and return their findings. Each submission was given a score from 1-5 based on ratings in four categories: clarity of purpose, vocal delivery, data visualization and slide design, and organization. These categories mirror the categories in which the peer tutors offered their feedback. Those subscores were added together for an overall score ranging from 1-20. Some students did not submit drafts that adhered to the prompt. Specifically, some students submitted a slide with no audio and others submitted a video of themselves speaking on the selected topic but with no accompanying slide. If students failed to submit an important aspect of the deliverable, they would receive a (0) rather than a (1) on that aspect of the scoring rubric. The details of the scoring rubric appear below in Figure 3. The assessor's raw scores appear in Appendix A.

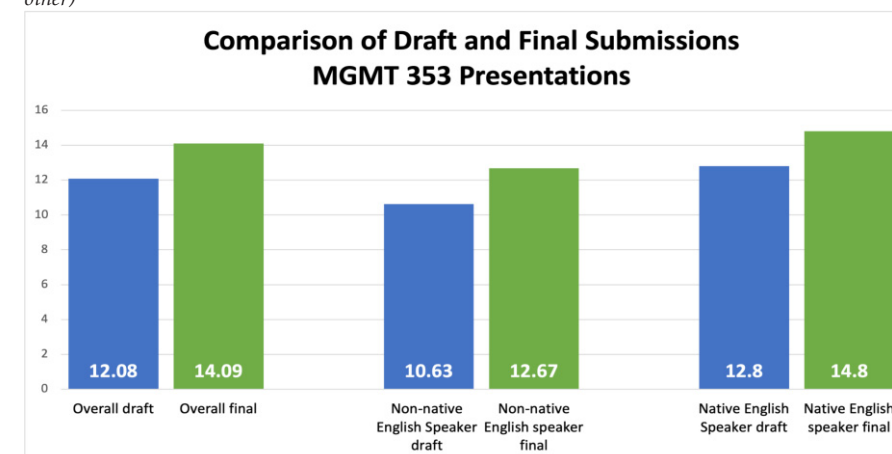
Figure 3.
MGMT 353 Assessment Rubric

Category	(1)	(2)	(3)	(4)	(5)
Clarity of Purpose	Does not state the purpose of the presentation. No clear opinion on the issue expressed at the start	Purpose of the presentation is vague and/or comes late in the presentation	Purpose of the presentation has some clarity, but is obscured at the beginning of the presentation	Purpose of the presentation is evident from the start	Purpose of the presentation is both evident and compelling from the start.
Vocal Delivery *If no voiced-over audio is present, select 0	Speaker does not project confidence, poise, or preparation. Speaks too quickly to be understood. Delivery lacks sufficient vocal variety and be monotone, muffled, or flat. Speaker may be reading. Language use may be unprofessional or too colloquial.	Speaker may not project confidence, poise, or preparation. May speak too quickly to be understood clearly. Delivery may lack sufficient vocal variety and be monotone, muffled, or flat. Speaker may be reading. Language use may be unprofessional or too colloquial.	Speaker projects basic confidence, poise, or preparation. Pacing is consistent and not too fast. Delivery includes adequate vocal variety to keep the audience engaged. Language meets basic professionalism standards.	Speaker projects confidence, poise, or preparation and exhibits consistent pacing. Delivery includes adequate vocal variety to keep the audience engaged. Language meets basic professionalism standards.	Speaker exudes confidence, poise, and preparation and delivers with exceptional vocal tone, projection, and emphasis. Language choices are professional at nearly all times.
Data Visualization and Slide Design *If no slide is present, select 0	Slides lack visual appeal. Slides are too wordy and/or do not use appropriate and engaging visuals. Data may be poorly visualized and confusing as a result. May include spelling/usage errors.	Slides may lack visual appeal. Slides may be too wordy and/or do not use appropriate and engaging visuals. Data may be poorly visualized. May include spelling/usage errors.	Slides have adequate visual appeal. Slides may have too many words, inappropriate or uninteresting visuals, but satisfactorily supplement presenters' main points. Data are adequately visualized.	Slides have visual appeal. Slides clearly communicate a central idea and contain engaging visuals with a lack of extraneous text. Data are shared visually in a readable and understandable way	Slides are creative and visually appealing. Data visualization is persuasive, credible, and engaging. Nearly or completely error-free.
Organization	No clear call to action for what the company should do. No qualitative data to support the action being advocated. Far exceeds the one-minute time limit.	Unclear or vague call to action. Unclear or vague data. Exceeds the one-minute time limit.	Weak call to action. Some data are included but may not adequately prove the claim being made. Meets the one-minute-time limit.	Clear call to action. Data clearly show the claim(s) being made. Meets the one-minute-time limit.	Inspiring call to action. Data clearly show the need for the action being advocated. Meets the one-minute time limit.

Results

The data clearly show that the quality of the final submissions improved on average two points on a 20-point scale. As Figure 4 shows, the average for the draft submission was a 12.08 and the average for the final submission was a 14.09. Non-native speakers improved from an average 10.63 to an average 12.67, which does not statistically differ from native English speakers who improved on average from 12.80 to 14.80. Though non-native speakers of English submitted drafts and final submissions that were assessed at a slightly lower overall quality than the work of the native English speakers, the rate of improvement was the same for both groups.

Figure 4.
Comparison of draft and final submissions, overall and broken out by native language (English or other)



Discussion

The measure of improvement between native speakers and non-native speakers of English was negligible, too small to be statistically significant. This result aligns with Suwinvattichaiporn and Broeckelman-Post's (2016) findings that native English speakers and non-native English speakers enrolled in a college public speaking course report at the end of the course statistically similar numbers for improvement in Communication Apprehension, Self-Perceived Communication Competence, and Willingness to Communicate. Their research notes that both groups of students improve on self-reported confidence, and both improve in roughly equal measure. Our research indicates that the observable quality of the students' public speaking skills improves in roughly equal measure as well.

One drawback of the study is that it cannot account for how much of the improvement is related to the peer feedback and how much is due to the forcing function of requiring an additional rehearsal. The act of submitting a draft and then submitting a final version means that by default the students have engaged in at least one rehearsal under the same circumstances as the final submission. The rehearsal necessitated by requiring a draft and a final submission may lead to improvement by itself. Menzel and Carrell (2009) note that two of the four largest predictors of the quality of a speech performance are total preparation time and number of

rehearsals. However, since it's unlikely that students would engage in this additional rehearsal absent a peer tutor review, the requirement to record and submit the draft serves a valuable function.

A future study could separate a group that receives feedback from their peers from one that receives feedback from trained peer tutors to determine if the quality of the comments impacts the outcome. When untrained peers offer feedback, almost 80% of their comments are related to delivery and vocal control and about 20% related to organization (Saidalvi & Samad, 2019). Since our peer tutors are trained to give more feedback on the organization and clarity than on delivery, it would be interesting to note whether this distinction has a measurable impact on the quality of the final submission.

On a similar note, a future study could analyze the quality of the feedback that the various recipients received. Saidalvi and Samad (2019) observe that peer motivational feedback can reduce anxiety or phobia of public speaking. Phrases such as, "I like the energy" and "I think I understand" powerfully impact the speaker's confidence level. We could examine if the impact was greater when performance-boosting language was used.

Finally, future studies could examine a control group of students who do not receive feedback, but since the feedback results in a higher overall quality of final submission for the students, enforcing

a control group by denying them access to the support their other peers have received seems to place them at an unfair disadvantage.

Conclusion

Oral communications are among the most valuable workplace skills to develop. Effective oral communication encourages socialization and builds bonds that facilitate the learning process. Productive communication is a boost to career development; an ability to convey thoughts in a clear and precise manner makes a worker more valuable to their supervisor and can afford a worker with opportunities they might not otherwise enjoy. Just as writing skills require practice, feedback, and revision to produce growth, oral communication skills require the same process.

The results of our study indicate that feedback from trained peer consultants correlated with a measurable and quantifiable improvement from draft to final submission. The impact was roughly equal for native speakers of English as it was for non-native speakers, indicating that all undergraduate business students benefit from this process.

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Appendix A

Results of the Assessment

English First Lang?	Draft or Final	Assessor 1	Assessor 2	Assessor 3	AVG
yes	Draft	17	20	19	18.67
yes	Draft	17	20	12	16.33
yes	Final	13	20	18	17.00
yes	Final	9	16	9	11.33
yes	Final	9	16	15	13.33
yes	Draft	9	16	13	12.67
yes	Final	14	20	19	17.67
yes	Draft	5	7	7	6.33
yes	Draft	11	16	16	14.33
yes	Draft	10	12	14	12.00
no	Final	9	8	8	8.33
No	Final	10	8	10	9.33
yes	Draft	12	8	14	11.33
yes	Draft	13	12	11	12.00
no	Draft	3	1	4	2.67
yes	Final	11	12	15	12.67
yes	Final	9	16	17	14.00
yes	Final	9	16	10	11.67
yes	Final	12	12	14	12.67
no	Draft	11	16	10	12.33
yes	Draft	8	12	16	12.00
yes	Draft	8	12	13	11.00
no	Final	9	20	15	14.67

English First Lang? Draft or Final Assessor 1 Assessor 2 Assessor 3 AVG

yes	Draft	8	12	13	11.00
no	Final	12	12	18	14.00
no	Draft	9	10	9	9.33
no	Final	10	20	15	15.00
no	Final	8	16	14	12.67
yes	Draft	11	16	11	12.67
yes	Final	12	12	14	12.67
yes	Final	12	16	17	15.00
yes	Draft	13	16	16	15.00
yes	Draft	7	7	4	6.00
no	Draft	4	12	14	10.00
yes	Final	16	20	19	18.33
yes	Final	13	20	16	16.33
no	Draft	12	16	12	13.33
yes	Final	13	20	17	16.67
yes	Draft	13	16	18	15.67
no	Draft	9	10	15	11.33
yes	Draft	5	16	10	10.33
yes	Final	13	12	15	13.33
no	Final	8	12	11	10.33
yes	Final	10	20	15	15.00
no	Draft	11	16	11	12.67
no	Draft	12	20	15	15.67
no	Final	9	16	18	14.33
yes	Final	9	20	16	15.00

English First Lang?	Draft or Final	Assessor 1	Assessor 2	Assessor 3	AVG
yes	Final	12	20	12	14.67
no	Draft	6	10	12	9.33
yes	Draft	15	20	19	18.00
yes	Final	12	20	16	16.00
no	Final	9	20	13	14.00
yes	Final	11	20	16	15.67
no	Draft	8	8	13	9.67
yes	Draft	9	20	14	14.33
yes	Draft	11	12	12	11.67
yes	Draft	13	16	15	14.67
no	Final	10	16	16	14.00
yes	Final	13	20	18	17.00

Historical Review of How-to-Study Courses and the Emergence of First-Year Seminars and Learning Frameworks Courses

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Abstract

Since the 1920s, colleges have offered how-to-study courses orientating students to the rituals of academic study. We present an historical overview of these courses by highlighting major developments including the emergence of courses that evolved from skill-based curriculum underpinned by behaviorism to strategy-based curriculum underpinned by cognitive psychology and self-regulation theories. We also focus on two unique common iterations of course categories offered today: first-year seminars, which were re-envisioned by the University of South Carolina in the 1970s, and theory-based learning strategy courses, often referred to as learning frameworks courses, which emerged in the 1970s at two Texas universities.

Keywords: how-to-study courses, learning frameworks courses, first-year seminar courses, theory-based learning strategy courses

Historical Review of How-to-Study Courses and the Emergence of First-Year Seminars and Learning Frameworks Courses

For many students, learning in college can be challenging. To provide support, postsecondary institutions have implemented how-to-study courses, a term for formalized courses that instruct students in utilizing skills and strategies of academic learning and facilitating students' transitions in college, for example, by helping them adapt to the campus culture and environment. With course names such as *College 101*, *Introduction to College*, *Effective Learning*, *University Seminar*, *College Orientation*, *Learning-to-Learn*, *Strategic Learning*, and *Learning Frameworks*—among many others—these courses are often offered in 1-, 2-, or 3-credit hour formats, but the specific aims and foci of these courses vary considerably in the literature and in practice. The purpose of this article is to provide an historical perspective of postsecondary how-to-study course offerings and to provide descriptions and curricula of two unique course categories that have emerged for today's college student: first-year seminars and learning frameworks courses.

The Development of How-to-Study Courses

One of the earliest known authors to address the art of study was Reverend Isaac Watts, a prolific Christian hymn writer best known for *Joy to the World*. Watts lived in England in the late 17th and early 18th centuries and authored a number of books on learning,

including *Improvement of the Mind*, first published in 1741. His chapter titled "Of Study or Meditation," posed 16 recommendations on studying, many of which resonate true today such as recommendation number 11:

Let every particular study have due and proper time assigned it, and let not a favourite Science prevail with you to lay out such Hours upon it as ought to be employed upon the more necessary and more important Affairs or Studies of your Profession. (Watts, 1741, p. 205)

Nevertheless, the study methods needed for college success varied little in the 18th and 19th centuries as students' formal learning was based on authoritarian-type class instruction with students expected to emulate their teachers' thinking and provide evidence of their learning through rote memorization and oral drill assessments (Blake, 1953).

Beginning in the 20th century, forms of instruction and assessments began to transform with the birth of the college elective system in the 1920s and 30s. Postsecondary institutions also began offering more holistic support to students with the development of guidance services (Blake, 1953), including study skills instruction. Although books had been written for teachers to introduce study skills to their students in primary and secondary schools, such as *The Art of Study* (Hinsdale, 1900) and *How to Study, and Teaching How to Study* (McMurry, 1909), it was not until 1916, when Guy

Whipple, a professor of education at the University of Illinois, authored his first edition of *How to Study Effectively* (Whipple, 1916), which was written specifically for high school and college students.

During the early part of the 20th century, approximately 60 colleges and universities began creating special orientation and how-to-study courses to help students better adjust to college and offer them study skills instruction (Book, 1927). The University of Buffalo, for example, offered a how-to-study course for underachieving applicants in 1926, as did the University of Minnesota in 1932 as part of their curriculum for their newly instituted General College, which had been designed to accommodate an open admissions policy (Wyatt, 1992). Many institutions were requiring all first-year students to enroll in their how-to-study course (Book, 1927). According to Enright (1994), these courses included topics on “time management, library skills, outlining, notetaking, studying for tests, and reading efficiency” (p. 32). During this period, authors also began publishing textbooks for students enrolled in these courses such as *How to Study in College* (Headley, 1926), *Learning How to Study and Work Effectively* (Book, 1926), *How to Succeed in College* (Book, 1927), and *Effective Study Procedures in Junior College and Lower Division Courses* (von Kleinsmid & Touton, 1929). Many of these textbooks were replete with research on outcomes from students enrolled in how-to-study

courses at the authors’ institutions. For an example of this early research, see Book (1927).

In the early 1930s, Charles Bird, author of *Effective Study Habits* (1931), provided educators with a glimpse into how the University of Minnesota’s how-to-study course originated. Bird stated that the university first offered a 3-hour a week non-credit course over a 5-week period with 100 students registered. He then provided details on how the course evolved into a course for college credit:

Because the scholarship records of students enrolled in these classes were superior to those of control groups of comparable character, we lengthened the course and granted college credits to students who completed it. In the new course, instruction could be adequately supplemented with practice study under guidance, and the students were obliged to devote time outside the class-room [*sic*] to completing exercises. Approximately 300 students each succeeding year have elected to receive this training in study techniques. (Bird, 1931, p. v)

By the 1940s, additional study guides, textbooks, programs, and how-to-study course offerings became more specialized focusing on study methods for students needing remedial and reading support and for students on academic probation. This was especially true due to the Servicemen’s Readjustment Act of 1944, popularly known as the G.I Bill of Rights, which brought a large expansion of

students to higher education (Wyatt, 1992). During this period, reading was singled out as the most important skill for college students and many remedial reading programs—often offered in the form of laboratories instead of classrooms at that time—emerged from an institution’s how-to-study course curriculum (Enright, 1994). Francis Robinson, a prominent educational psychologist from The Ohio State University, published *Diagnostic and Remedial Techniques for Effective Study* (1941). The manual was written as a self-help guide for students to use with guidance counselors. Students would take reading and other diagnostic assessments within the manual to discover problem areas and then engage in remedial measures that were indicated (APA Psyc Net, n.d.). The manual was revised into Robinson’s *Effective Study* (1946) textbook, whereby his SQ3R method emerged as a popular systematic study approach using the process of survey, question, read, recite, and review. At the time his book was published, Robinson claimed that over 100 colleges had remedial reading and how-to-study programs to promote students’ success (Robinson, 1946).

By the early 1950s, 90% of colleges in the United States were offering some kind of study skills course, and 10% required such a course to be taken by all students (Blake, 1953, as cited by Entwisle, 1960). Many of the study skills textbooks written for college-bound high school and college students published in the late 1950s and

early 1960s continued to promote study skill-based approaches. For example, in 1962, Walter Pauk, director of Cornell University’s Reading-Study Center, published the first of many future editions of his influential textbook *How to Study in College*. Conceived “with extensive trial and experiment based on the most widely tested educational and learning theory” (p. vii), Pauk introduced students to study skill techniques including what has come to be known as the Cornell Notetaking System. In his second edition, Pauk (1974) re-arranged his chapters into skill-based categories using titles such as “The Supportive Skills” (e.g., concentration, forgetting, memory); “The Basic On-Going Skills” (e.g., vocabulary building, reading skills); “The Academic Skills” (e.g., note-taking, textbook reading, marking and note-taking, studying for exams, taking exams, writing good papers, research papers); and “The Specialized Skills” (e.g., studying mathematics, studying science, speaking effectively, mastering foreign language) (see Contents section). Although research was often cited to support the topics being promoted, the contents were void of theoretical constructs. In both his first and second book editions (1962, 1974), Pauk even defended the absence of theory in his book. In his first edition, he stated that based on his 9 years of experience directing Cornell University’s Reading-Study Center at that time, he found that:

Students are not primarily interested in theory, and most of them have little patience with merely inspirational talk. What

they mainly want is simple, practical instruction on how to tackle and overcome their special difficulties. ... While theory is always implicit, and is sometimes given in enough detail to assure the skeptic or explain the rationale of a recommended technique, it is never presented without explicit instruction on how to apply it, and it is never used simply as exhortation. After all, the person who needs penicillin is seldom cured by learning the history of antibiotics. (1962, p. vii)

During this period, behaviorism was the dominant perspective in psychology through the mid-20th century and denotes learning in terms of observable stimulus-response phenomena of learning. However, cognitive theories became the prevailing perspective by the late 1970s and opened the door for how-to-study course instructors to teach theoretical constructs to their students. Cognitive theories focused on how incoming information is processed and structured, the construction of knowledge and skills, and the internal processes that affect behavior—including thoughts, beliefs and feeling—instead of just the behavior itself (Weinstein & Mayer, 1986).

Early research on cognitive strategies investigated surface-level mnemonic strategies and their effects on recall (Wood, 1967). Over the next decade, researchers began showing that deep-level cognitive strategies (e.g., elaboration and organization strategies; Weinstein & Mayer, 1986) were critical for mastering more complex

learning tasks. These cognitive strategies were rooted in principles of generative learning (Wittrock, 1974) which posited that, to construct knowledge, students must elaborate the new information they are trying to learn with their own ideas and connect this new information with their prior knowledge and experiences. Learners were no longer being viewed as passive recipients of teachers' lessons, rather as active learners who generate their own knowledge through active learning. However, by the mid-1980s, researchers found that students were unlikely to use cognitive strategies outside of laboratory contexts and unlikely to transfer their learning to new situations (Pressley & McCormick, 1995; Zimmerman, 2008). Teaching isolated study skills and cognitive strategies were insufficient to produce lasting effects on students' learning. A more comprehensive, interactive, and flexible approach was needed.

To address this issue, contemporary models of strategic and self-regulated learning (e.g., Pintrich, 2004; Weinstein et al., 2000; Zimmerman, 2000) emphasized interactions among cognitive, metacognitive, motivational, affective, behavioral, and environmental factors in fostering effective learning. They emphasized the use of learning strategies broadly defined (e.g., cognitive strategies and motivational strategies) as well as the development of self-regulatory processes that enable students to proactively manage their learning and adapt their use of strategies to reach learning goals more effectively and efficiently.

Contemporary views recognized the role of teaching students' models of learning because, as the literature on the transfer of learning has rightly noted, "[b]y identifying the underlying principles of actions, thoughts, perceptions, and operations we can facilitate the transfer of knowledge to contexts that are fundamentally dissimilar from those that are initially encountered" (Hajian, 2019, pp. 96–97). In other words, understanding, theoretically, how learning works, and the abstract reasoning behind why learning strategies are effective, was found to have practical value for the purpose of applying learning strategies to new tasks. Similarly, teaching heuristics (rules of thumb, rather than algorithmic recipes for learning) became favored because it allowed greater flexibility for students to adapt their strategic approaches to the situation and their individual differences. In addition to teaching theories, models, and heuristics of learning, learning inventories also became prevalent for fostering strategic learning by helping students formally assess and reflect on improving their study methods. For example, the *Learning and Study Strategies Inventory (LASSI)*, developed by Weinstein et al. (1987), is based on 10 scales that assess skill, will, and self-regulation processes.

In the late 20th and early 21st centuries, cognitive theory and learning strategies began to appear in student success textbooks such as Herlin and Albrecht (1989) *Study & Learning: The Development of Skill, Attitude and Style*, and Dembo's *Learning*

Strategies: A Self-Management Approach (2000). Researchers analyzed 53 study skills textbooks published from 1994–2005 and found they addressed similar topics—94% addressed 11 out of the following 18 topics:

managing time, reading, note-taking, test taking, preparing for tests, memory and learning, anxiety and stress, listening, structuring the environment, setting goals, assignments: writing and presenting, motivation, classroom behavior, getting help or resources, using the library, technology, learning style, and developing vocabulary. (Hadwin et al., 2005, as cited in Winne, 2013, p. 388)

Although various learning strategies and study skills were prevalent in this investigation, few textbooks had content on self-regulated learning processes (Hadwin et al., 2005, as cited in Winne, 2013).

Over the years, various college courses have addressed how-to-study curriculum to different degrees along with other areas related to college success such as college knowledge and adjustment. Cole et al. (1997) created six student success course categories based on an analysis of syllabi and course content from lower-level college introductory courses to higher-level theory-based courses.

Orientation courses introduced students to an overview of the institution, such as campus resources and location. *Navigation* courses extended this topic by providing instruction on how and

when to use campus resources. *Academic and Personal Development* courses, such as first-year seminars, facilitated students' transition from high school (and potentially other areas) to college and could contain elements of orientation, navigation, study skills, institutional commitment, and other areas deemed relevant to college transition. *Learning-to-Learn* courses instructed students in study skills and learning strategies and introduced students to some theory. *Critical Thinking* courses promoted independent thought, problem solving and decision making. *Learning Framework[s]* courses, which are deeply rooted in educational psychology theory, engaged students in a process of self-discovery and analysis to facilitate their development of perspectives about themselves as learners so they can monitor and regulate their own learning (Cole et al., 1997). Of particular interest for our purposes here are first-year seminars (FYS) and learning frameworks courses. These are two of the primary course categories currently offered at postsecondary institutions today.

First-Year Seminars

First-Year Seminars (FYS)—also referred to as “first-year experience courses, study skills, student development or new student orientation courses” (U.S. Department of Education, 2016b, p. 1), among other names—are intended to scaffold students successfully through their first year of college. FYS began to appear in higher education with the goal of helping students to navigate

college-related challenges and to help students acclimate to the college culture and environment (Keup & Barefoot, 2005). Boston College pioneered the first non-credit freshman orientation class in 1888 (Gardner, 1986 as cited by Bigger, 2005). In 1911, Reed College (Portland, OR) offered the first orientation course for college credit in separate men and women sections. The course met 2 hr per week for the year (Gardner, 1986, as cited by Bigger, 2005). Note that the popularity of these courses fluctuated and nearly vanished by the 1960s. Yet the birth of the contemporary FYS movement is attributed to the Civil Rights Movement, with the president of the University of South Carolina in 1971 re-envisioning the seminar as he sought to establish trust and cooperation between students, staff, and faculty to enhance student retention and improve teaching in the institution's undergraduate programs. Postsecondary institutions throughout the U.S would replicate the seminar on their own campuses (University of South Carolina, n.d.).

Now ubiquitously offered at both 2- and 4-year institutions for college credit, FYS have various objectives and curricula. Barefoot and Fidler (1992) identified five types of FYS: *extended orientation*, *academic seminars with uniform or variable content*, *introduction to discipline-specific fields of study or professional seminars*, and *basic study skills*. *Hybrid seminars* combining several course types also exist (Tobolowsky & Associates, 2008).

The most common FYS type is the extended orientation seminar, which has the goal of helping students transition into a college setting by instructing students in study skills instruction, campus resource knowledge, time management, career preparation, campus policies, and academic advising (U.S Department of Education, 2016b). We also found extended orientation seminars that encouraged students to set community-oriented goals, cultivate and maintain relationships, enhance interpersonal skills, incorporate citizen education (Clouse, 2012), promote social justice and multicultural awareness, encourage academic and campus engagement, foster faculty and peer interaction (Hatch-Tocaimaza et al., 2019), and engage in self-care (Dyar, 2022).

Academic seminars are increasing in number with either uniform curriculum (i.e., all sections have a set curriculum) or variable content (i.e., different sections vary by topic and/or the expertise of the faculty member). Academic seminars may also help students develop their writing, critical thinking, and study skills. Discipline and profession seminars introduce students to the demands of their major and their eventual career choice. Basic study skills seminars focus on building students' skills such as time management and note-taking (U.S. Department of Education, 2016b).

Deemed a high impact educational practice by the Association of American Colleges and Universities (Kuh, 2008), FYS are often taught in tandem with an institution's First-Year Experience

(FYE)—a phrase coined by John Gardner, who is considered the founder of the movement (Koch & Gardner, 2014). FYE programs commonly incorporate annual common intellectual themes with related readings, speakers, films, fine arts and symposia (Agee et al., 2018). Course goals and content vary across courses, but some of the common goals, in order of prevalence, found by Barefoot and Fidler (1992) included: develop academic skills, provide knowledge of campus resources, ease transition from high school to college, develop major and career plans, provide opportunity for interaction with faculty, develop student support groups, help student feel connected to the institution, introduce the purpose of higher education, create campus community, and develop values and ethics.

Sample First-Year Seminar Curriculum and Course Design

In a unique course design, Dyar (2022) implemented an FYS hybrid course that pitches the characteristics of a good learner as “a form of self-care” (p. 77). Students first verbalize what they want to gain from the course and what concerns they have about college. Students then take a learning strategy self-assessment and another on self-care strategy use; students then formulate goals and a learning/self-care plan. Students then form groups for peer support and to cultivate a sense of community. The course then covers topics such as learning strategies, campus resources for academic and for wellness purposes, metacognitive skills for both academic

and mindfulness strategies, how mindset and affect guides both learning and interpersonal development, how effective study strategies use is a form of self-care, and how to engage with others and your community in a caring way.

Learning Frameworks Courses

Learning frameworks courses, also known as strategic learning courses, learning strategy courses, and learning-to-learn courses—among other names—represent the most recent manifestation of courses created to teach students the art of college study. Traditionally, study skills courses promote study techniques and topics that are taught in isolation. Research and theory underpinning those skills and topics are usually absent from the curriculum. Learning frameworks courses differ by including research and theory from behavioral, cognitive, motivational, and adult learning approaches, among others, to underpin the strategies and skills that are promoted to students. These courses integrate learning theory with learning strategies so that students understand the reasons for engaging in specific study behaviors and to help them adapt to differing circumstances. A primary goal is to foster students' abilities to monitor and regulate their own learning through an understanding of themselves as learners and, often, through using self-regulated learning principles. Students then develop individualized learning strategies based on their knowledge of current theories (Agee et al., 2018) and through

feedback gained from self-regulating their use of learning strategies. According to Weinstein et al. (2004) the ultimate goal is to help facilitate students' transfer of what they are learning in these courses to other coursework and future learning.

Two “Model” Learning Framework Courses

Learning frameworks courses were authorized in 1999 by the Texas Higher Education Coordinating Board (THECB) to generate formula funding for up to three semester credit hours. Courses were expected to focus on "1) research and theory in the psychology of learning, cognition, and motivation, 2) factors that impact learning, and 3) application of learning strategies" (Hill, 2000, p. 1). A critical characteristic of such a course, according to the THECB, was "the presence of theoretical models as the curricular core" (Hill, 2000, p. 1). Not only was teaching theory practically useful for teaching learning strategies, but it also helped to justify that the material being taught in learning frameworks courses was at the college level, like other college-level psychology courses, and worthy of formula funding.

Educators from two universities in Texas (Texas State University [TXST] and University of Texas at Austin [UT Austin]) are credited for creating the first of these theory-based learning frameworks courses. According to Hill (2000), both courses were deemed “model courses” by the THECB (p. 2).

Educational Psychology (EDP) 1350, Effective Learning

In 1973, De Sellers, an educational specialist at Southwest Texas State University, now TXST, was hired to create an elective 3-credit-hour psychology course to enhance students' academic success (Lollar & Pipper, 2022). According to Carol Dochen, long time director of TXST's Student Learning Assistance Center:

Psychology 1320 [now EDP 1350, Effective Learning] began as a typical learning and study skills course covering topics on reading skills, comprehension, vocabulary, note-taking, time management, and test-taking skills. But there was one important exception. De [Sellers] began incorporating learning theories, such as behaviorism [behavior modification], to underpin the skills and strategies she taught, along with a self-change project for students to apply behavioral techniques to their own learning and lives. As time went on, metacognitive, cognitive, and memory theories such as information processing models were added along with theories and concepts from the affective learning domain. De [Sellers] was at the cutting edge in her approach and is credited for creating what are now referred to as "learning frameworks" courses offered throughout Texas and the nation. (Lollar & Pipper, 2022, p. 39)

Hodges et al. (2019b) described the EDP 1350 current curriculum that interweaves (a) pre-and post-self-assessments, (b) self-

regulation theory and strategies, and (c) cognitive theory and strategies. Standardized *self-assessments* are administered such as the *LASSI* (Weinstein et al., 2016) and *Myers Briggs Type Indicator* (Briggs & Myers, 1998), along with textbook chapter self-assessments and journal questions so that students can reflect on their areas of strengths and areas for growth. To promote *self-regulation*, students focus on overt behaviors (e.g., self-monitoring, setting goals, and time planning), and affective and non-cognitive dimensions of learning. Also included are lessons on social cognitive theory of self-regulation (see Bandura, 1991); self-efficacy (see Bandura, 1991; Branden, 1994); self-discipline (see Peck, 1978); Maslow's hierarchy of needs theory (see Maslow, 1954); and expectancy-value theory of achievement (see Wigfield & Eccles, 2000). Students also study concepts on flow (see Csíkszentmihályi, 2008), willpower (see McGonigal, 2012), mindset (see Dweck, 2006), and stress and anxiety management (see Hanson & Mendius, 2009). Additionally, students engage in a 4-week, self-management project underpinned from behavioral psychology. *Cognitive* theories such as information processing models (see Atkinson & Shiffrin, 1968), and memory theory based on the structure, function, and plasticity of the brain (see Smilkstein, 2011) underpinned cognitive strategies such as rehearsal, elaboration, and organizational techniques (see Weinstein & Acee, 2018). Primary types of knowledge—declarative, procedural, and conditional (see Anderson & Krathwohl, 2001;

Gagne, 1985)—were taught to enrich students’ understanding of the acquisition of knowledge through different modalities as well as the concept of metacognition (see Flavell, 1979; McGuire et al., 2015).

Hodges et al. (2019b), also conveyed that much class time is devoted to practice exercises to help students transfer learning strategies across their academic programs. He indicated that over the years, several categories of students registered for the course, including students admitted under conditional admission categories, those admitted in summer bridge programs, and those experiencing academic difficulties. Doctoral students pursuing degrees in developmental education served as instructors as well as faculty members.

Educational Psychology (EDP) 310, Individual Learning Skills

Claire Ellen Weinstein, professor at UT Austin, was renowned for her groundbreaking research on learning strategies (McCombs, 2017) and as senior author of the *LASSI* (Weinstein et al., 1987, 2002, 2016). Weinstein also created one of the nation’s first learning frameworks courses. First offered in 1975 at UT Austin, EDP 310, Individual Learning Skills, was a college-level, 3-credit hour course open to all undergraduate students wanting to improve their success in college, and, at times, required for some students (e.g., over the years it was required by certain programs and for students on academic probation). As the course developed, Weinstein interlaced cognitive, metacognitive, motivational, affective, and

behavioral domains of learning—both theories and strategies—to help students to become more strategic and self-regulated lifelong learners capable of reaching their academic goals in college (Hodges & Acee, 2017). Various areas were addressed relating to skill (e.g., learning strategies, problem-solving, self-knowledge, and academic task knowledge); will (e.g., self-efficacy, future time perspective, goal setting, goal analysis, and academic emotions); self-regulation (e.g., time managing, concentrating, using a systematic approach to learning, comprehension monitoring, self-testing, and academic help seeking); and the academic environment (e.g., teacher’s beliefs and expectations, available resources, and social context and support). Weinstein’s model of strategic learning underpinned and helped to organize the course content; she posited that strategic learning emerges from interactions among constructs within these four major model components: skill, will, self-regulation, and the academic environment (Weinstein & Acee, 2018).

Weinstein believed that all learners could be taught to use learning strategies and improve their learning. She defined learning strategies broadly and not strictly as cognitive:

These techniques, referred to as learning strategies, can be defined as behaviors and thoughts that a learner engages in during learning and that are intended to influence the learner’s encoding process. Thus, the goal of any particular learning strategy may be to affect the learner’s motivational or

affective state, or the way in which the learner selects, acquires, organizes, or integrates new knowledge. (Weinstein & Mayer, 1986, p. 316)

In EDP 310, students first completed the *LASSI*, an 80-item assessment of students' awareness about and use of learning and study strategies related to skill, will, and self-regulation components of strategic learning. The 10 scales included: anxiety, attitude, concentration, information processing, motivation, self-testing, selecting main ideas, test strategies, time management, and using academic resources (see the latest version of the *LASSI*, Weinstein et al, 2016). Both classroom instruction and, and in later years, online *LASSI* instructional modules (Weinstein & Acee, 2020), were used as part of the curriculum (Weinstein & Acee, 2013). EDP 310 targeted students who enter the university under special circumstances or who experience academic difficulty after reentry. Advanced doctoral students in educational psychology served as instructors (Weinstein, 2018). In 2017, the course prefix and title were revised to EDP 304, Strategic Learning for the Twenty-First Century. The current course description reads:

Explores a wide range of subjects in educational psychology that impact student learning, including theories of cognition and motivation, and applying them to academic work.

Appropriate for students interested in learning more about basic theories of educational psychology, seeking to improve

performance in their classes, as well as those experiencing difficulty succeeding academically at the University. (Texas Education: The University of Texas at Austin, College of Education, n.d.)

Since their approval by the THECB, many institutions in Texas have established learning frameworks courses. In fact, approximately 90% of Texas community colleges now offer these courses, many of which require enrollment of first-year students (Hodges et al., 2019a).

Research Outcomes on First-Year Seminars and Learning Framework Courses

As previously explained, postsecondary institutions offering courses to promote college success vary widely in the content addressed and approaches used. For our purposes here, we have honed our focus on first-year seminar and learning frameworks courses. Even within these two categories of courses, in practice, course content and instructional approaches can vary in substantive ways and potentially lead to different outcomes for students. However, overall, the available research on FYS and learning frameworks courses suggest benefits for the students enrolled, notwithstanding some mixed results and the need for further research. What follows is a brief review of some of the evidence regarding the effects of first-year seminars and learning frameworks courses on various academic outcomes.

First-Year Seminar Outcomes

Cho and Karp (2012) found that students enrolled in FYS in their first semester are more likely to earn college credit during the first year, and more likely to persist to the second year as compared to students not enrolled in the course. Zeidenberg et al. (2007) used Florida Department of Education data to track a cohort of all students who enrolled in a FYS at a Florida community college as first-time students in fall 1999. Students were tracked for a total of 17 semesters, and results indicated that the institution's FYS correlated with a positive effect on credential completion, persistence, and transferring to 4-year institutions. Additionally, the What Works Clearinghouse (U.S. Department of Education, 2016b) identified 97 eligible studies that investigated the effects of FYS for college students. However, only four of the 97 met WWC's rigorous research group design standards (see Clouse, 2012; Jamelske, 2009; Shoemaker, 1995; and Wilkerson, 2008). The four studies together included a total 12,091 first-year college students in four colleges across the United States. Based on their analysis of these four studies, the WWC considers the extent of evidence for FYS courses is large for credit accumulation and small for college degree attainment and general college academic achievement (U.S. Department of Education, 2016b).

Researchers have also shown that FYS can be effective for certain populations of students. For instance, Mendez et al. (2020)

examined the impact of an 3-credit hour FYS for elective credit for students at an emerging Hispanic-Serving Institution by investigating the academic and financial factors that affect persistence and dropout risk. Although results showed small positive effects for the general population, the largest benefits were seen for students from underserved groups. After taking the course, lower socioeconomic background students were 43% more likely to return for their second year as compared to those not enrolled in the course. Women were 27% more likely to return and African American males were twice as likely to return. Pickenpaugh et al. (2021) also found that students undeclared in their major taking FYS increased their grade point average by 0.4 in the first-term and increased retention rates to their second year by about 10% as compared to undeclared students not enrolled in the FYS course.

Additionally, the WWC identified 19 eligible studies that investigated the effects of FYS for students enrolled in developmental education. Of these, however, only one study was a randomized controlled trial that met WWC rigorous group design standards without reservations. Specifically, Rutschow et al. (2012) conducted a randomized controlled trial over three semesters (spring 2008 through spring 2009) to evaluate a 2-credit hour FYS for students enrolled in developmental education courses at a technical community college in the southeast United States. However, there were no statistically significant differences between

FYS participants and comparison participants on either the percentage of students passing all courses or the percentage of students receiving a GPA of “C” or better. Additionally, the study revealed neither a statistically significant nor substantively important effect for students’ progress through the developmental education course sequence, credit accumulation and persistence (U.S. Department of Education, 2016a).

Learning Frameworks Outcomes

Research investigating student outcomes on learning framework courses have also produced positive results. For example, Pintrich et al. (1987) developed a 4-credit hour introductory cognitive psychology course at the University of Michigan titled *Learning to Learn*. First offered in 1982, the course provided instruction in theory and research in cognitive psychology and in the application of learning strategies. Outcomes of the course were described as producing significant changes in student’ self-reports of using learning strategies and small changes in students’ grade point averages (Pintrich et al., 1987). A subsequent study (Hofer & Yu, 2003) found that after adding motivational factors and refining the conceptual model used in the course, students made statistically significant positive changes on measures of self-efficacy for learning, valuing of course material, use of cognitive strategies, and test anxiety.

Early research conducted separately by researchers at TXST (Hodges et al., 2001) and UT Austin (Weinstein et al., 1998) showed statistically significant improvement in retention, grade point average, and graduation rates for students who successfully completed a 3-credit hour learning frameworks course compared to students not enroll in these courses. For example, after having demonstrated multiple years of statistically significant increases on students’ pretest to posttest LASSI and reading comprehension scores, Weinstein et al. (1997) compared the 5-year graduation rates of students who took her learning frameworks courses to the general population of students. Despite having lower SAT scores, those who took the learning frameworks course graduated at 71%, compared to 55% for the general population of students. UT Austin and TXST studies also helped to influence the THECB to allow Texas higher education institutions to generate formula funding for learning frameworks courses in Texas.

In more recent studies, Tuckman & Kennedy (2011) examined the effect of students taking a learning strategies online (hybrid) course on grade point average, retention, and graduation rate. The researchers examined the results of 351 first-year students over their first four terms in comparison with 351 matched non-course takers. First-year students who took the course in their first term had statistically significantly higher grade point averages in each of their first 4 terms. Students completing the course also demonstrated

statistically significantly higher retention rates and were six times more likely to be retained. In addition, they had statistically significantly higher graduation rates than did their matched controls.

In a qualitative investigation at a 4-year university in the southwestern United States, Hodges (2019b) sought to identify the perceived salient factors that students identified after completing a learning frameworks course. The researchers concluded that the most robust salient factors identified by students occurred in the behavioral domain (e.g., study and self-management strategies), followed by the affective domain (e.g., increased motivation and locus of control, lessening anxiety and stress) and cognitive domains (e.g., help-seeking strategies, note-taking skills improved writing, and learning about brain function). Additionally, Hensley et al. (2021) found that a learning-to-learn course underpinned by self-determination theory resulted in students having a greater sense of autonomy, competence, and relatedness. The teacher's instructional approach factored into how students viewed their roles in the class as well as if they felt welcome, appreciated, and involved in the course. Students who had a greater sense of relatedness had better results in the course.

Conclusion and Implications for Research and Practice

Understanding the history of a field of research and practice is critical for one to utilize wisely the knowledge and innovations of

that field and make future contributions. For practitioners and researchers alike, we need to understand where our field has been to determine where we stand now and where we should go next. Our review of the history of how-to-study courses and its intertwined history with research movements and innovations in educational psychology show that the field has made tremendous strides forward in more holistically supporting college students' learning and transition success. From basic study skills courses to learning frameworks courses, from basic orientation courses to FYS, practitioners have incorporated research developments as well as their own on-the-ground ideas for supporting students in college.

Today, most all courses and textbooks that address how-to-study curriculum emphasize the role of active learning and learning strategies over passive rote approaches of the past. Furthermore, it is now more common than in the past for courses and textbooks to address motivation, self-regulation, conceptual models of learning, and assessments that provide students with feedback on their studying approaches. As Hodges et al. (2019a) showed, some courses address a wide range of topics that stretch beyond traditional how-to-study curriculum and into social, occupational, personal, and life skills development, and admittedly we know very little about the utility of addressing these topics and whether they should be taught separately or alongside how-to-study courses. As we reviewed the research on FYS and learning frameworks courses,

we found an overall trend of positive effects of these courses on academic outcomes. However, more research is needed to test these course effects with greater rigor, pinpoint curricular and pedagogical approaches responsible for course effects, and examine differential benefits of these courses for different student groups. The number of learning frameworks courses and FYS run each semester far exceeds the number of research studies conducted on them, and this presents a major gap, not just in the research literature, but for further developing these courses in practice. Therefore, practitioners should elicit the help of researchers to investigate the effects of their courses to fine-tune their approaches and inform the field at large.

We expect the evolution of how-to-study courses to continue. The most exciting new horizon is the collaboration of researchers in cognitive psychology, neuroscience, educational psychology, student development, and other related disciplines as we continue to investigate research-based practices to support students' success. Breakthroughs in how technology affects learning is also being studied with great implications for how we can best support students' success. For those new to the field, or those that have years of experience teaching or coordinating how-to-study courses, this resource provides an historical perspective to assist with providing support for future teaching, research, and faculty and staff training.

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Pertinent Publishing Parameters

The Learning Assistance Review (TLAR), the national peer reviewed official publication of the National College Learning Center Association (NCLCA), publishes scholarly articles and reviews that address issues of interest to learning center professionals (including administrators, teaching staff, faculty, and tutors) who are interested in improving the learning skills of postsecondary students. Primary consideration will be given to articles about program design and evaluation, classroom-based research, the application of theory and research to practice, innovative teaching and tutoring strategies, student assessment, and other topics that bridge gaps within our diverse profession.

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