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I. Introduction

Writing Across the Curriculum (WAC) must serve as a vehicle for students to learn to drive successfully through all types of terrain and weather. As students, they do not yet know all the possible diverse passengers and cultures they may need to entertain in future trips. In other words, a 21st century student's skill-set has to be adaptable to all the currently unforeseen career paths that a student may need to work in successfully and to communicate within effectively—this is not to replace or rule out having specialized knowledge and skills within a certain field. If a student faces rhetoric only in his English courses, he will be greatly disadvantaged when compared to a peer given the opportunities to practice discourse in other disciplines. The student—able to learn by writing toward and with content-specific audiences—moves with agility to avoid accidents when entering different terrains, learns to adapt to different purposes, and such unfeigned confidence affords acceptance into other discourses.

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II. History

Almost analogous to these two countries driving on the opposite side of the road from each other, the history behind WAC begins in two different directions: the British focus on language across the disciplines while the Americans emphasize writing. According to Nancy Martin, a retired professor at the University of London's Institute of Education and former director of the British Schools Council Writing-across-the-Curriculum Project, the emphasis on language as opposed to merely writing started during LATE's (London Association for the Teaching of English) research on how to teach all students in a "common school" system instead of just educating the bourgeoisie and upper-class children. LATE "sought a pedagogy that had its roots in language development [because their new clientele sorely lacked proper speech and understanding of conventions] and would also be contained within a philosophical framework of humane learning theory" (Martin 12). Research-based Jean Piaget's text Play, Dreams and Imitation in Childhood fulfilled their purpose and fueled a focus on egocentric speech—where the "origin of writing" occurs—as "a kind of pivot for developing language theories" (Martin 12). Ten years later, LATE continued research on the connection between language and learning, and during a 1967 conference on "talk" Martin names "language across the curriculum" as the focus (since the 1950s and into the current future). The justification is clear as writing ties into language studies and education, but it is not the focal foundation of American WAC efforts and inception.

Whether semantics delineate speech or writing, at the core one finds WAC promoting the assumption that language, learning, and teaching (Russell 41) must serve as the base and structure of a meaningful education. Many leaders of WAC programs echo similar personal experiences that emphasize the vital role of using language appropriately. The sentiments of Thomas L. Hilgers, director of the University of Hawaii's Manoa Writing Program, serve as one example: "With an MA in literature, I began graduate study in psychology. On my first seminar paper, my professor wrote, 'Highly literary, but not a

review of literature.' Later, after I had the PhD in psychology, my English department tenure committee notes that 'his articles read well, though perhaps with overreliance on social-science jargon" (Marsella, Hilgers, and McLaren 174). Those within academia—starting initially as far back as Socrates—notice how integral one's ability to communicate is for one's ability to achieve a worthwhile education that is transferable to posteducational endeavors.

III. Benefits and Challenges

As alluded to above, throughout its history (which Russell asserts began formally in mid-1970 America (29)—earlier, of course, as stated above for the British) WAC has faced numerous challenges when trying to quantify its positive effects on student learning and academic success. However, such challenges certainly have not discouraged concerned individuals and groups from trying. In addition, WAC effortlessly morphs into endeavors and programs that suit the stakeholders involved, a result which—although beneficial at the time for the given institution, course and/or student needs—creates another layer of complexity when one tries to determine the successfulness of the movement over time.

As one could deduce from its versatile nature, WAC offers numerous benefits, despite the current lack of conclusive scientific evidence. Fostering collaborative learning practices between students and faculty, increasing learning for students engaged in meaningful writing exercises, and opening doors for students to enter into various discourse communities are a few of the best documented reasons to take WAC risks.

At any level of education, primary goals revolve around the quality, depth and amount of learning achieved by students. Historically, WAC boasts the ability to cultivate these goals in all disciplines. One may cite the 1977 essay where Britton presents writing in the disciplines as predisciplinary theory (which means that teachers must understand what students need in order for them to find understanding (60)). Here the emphasis is on the quality of the learning and not the delivery of specific content

(Britton 47). For other evidence of WACs ability to achieve basic educational goals, one may look at Russell's understanding of how nascent WAC in the 1970s and early 1980s "evolve[d] a broader version of progressive pedagogy...[to] link writing not only to learning and student development but also to the intellectual interests of specialists" (39). As seen through these two experts' assessments of early WAC, its versatility certainly works as a strength in serving diverse educational goals, but it may also leave itself vulnerable to heavy disapproval because of its lack of consistency in practice and elusive definition.

When considering WAC—just as one would with any educational theory or pedagogy—understanding the criticisms helps one to decipher where shortcomings may arise or how and where WAC is best used. The greatest historical contention runs parallel to common misconceptions of composition theory: WAC merely tries to promote grammatical and surface changes at an institutional level (McLeod; McLeod and Maimon). Since WAC programs transcend traditional departmental structures, funding and leadership are inconsistent and seem to contribute to logistical instability in their staying power and wide-spread effects—especially at an elementary or secondary level. A criticism related to faculty turn-over and lack of funding or institutional support in general is shouted loudest by Daniel Mahala (who has served as a professor and writing director at University of Missouri, Kansas City, and at Drake University), He asks why WAC has not done more for increasing institutional changes. Mahala also asserts that the movement began too much on the side of expressive theory and has "maintained a political invisibility" instead of "really interrogating prevailing attitudes about knowledge, language and learning" to enact serious institutional change (Mahala 733).

Despite warring opinions of WAC success and effectiveness, one could consider welcoming students into the discourse of academia as pure common sense. Throughout education's history, numerous composition theorists (such as Freire, Bartholomae, Bruffee, Pratt, McCormick—to name a few) have touted the direct correlation between students' familiarity with a discourse

community and their success at an institution, yet WAC takes this recognition one step further by asserting that students need practice with switching registers so they may aptly converse in disciplines where norms taught by the BA, MA or even PhD English-trained instructors may not prevail.

One of the most obvious examples compares attitudes toward writing with passive voice: the humanities deplore such constructions whereas the sciences and technical writing prefer it. Even more difficult-to-pick-up nuances exist within discourse communities. For example, a student may even need to know when to shift writing styles for an audience within a single job, as happens daily for Ralph Gakenheimer, who teaches (at MIT), works in the urban planning/civil engineering field, and considers "translating ideas" the bulk of his job's duties. Gakenheimer reflects on how consequential the role of deciding to write critically or neutrally plays in the success of his clients and proposals. A critical style (filled with analysis and projections of causes for certain decisions) suits his colleagues within the urban planning department, but a client proposal necessitates a neutral (objective, completely detached) style. The optimal style depends on his audience and purpose for the writing. (And when writing "up to 30 pages a day on client reports" (Dunlap 216), he must determine appropriate style efficiently.) Essentially, his writing either assuages serious issues and secures funding or it fails his business pursuits (Dunlap 216-223).

As further case in point, Gakenheimer does not hold a composition or English-related degree; however, he does possess the best background to train students for the types of writing they will produce if their field involves engineering. To truly welcome a student into the discourse community that he or she needs to know, disciplines outside the English Departments need to be onboard with WAC efforts: "The person who knows best how to initiate the newcomer is not the composition teacher, but the teacher who is already grounded in the content of the field and who is fluent in the disciplinary discourse—the history teacher, the biology teacher, the math teacher" (McLeod 174). Students' exposure to WAC increases their awareness of the

rules and heuristics in the different disciplines as well as their ability to express complexity of thought in their language. Instructors and institutions striving to create more sensitive and critical thinkers able to articulate judgments—on paper as well as verbally—foster a society that runs and progresses at increasingly higher levels. The world sorely needs students learning through meaningful writing exercises that prepare them for situations outside of academia.

To achieve such preparation, perhaps again it may seem common sense that the activities that lead to genuine learning are those with a blend of student-centered, real-world, challenging exercises that require students to not only build on and learn knowledge but to demonstrate and articulate said knowledge while practicing skills and acquiring new knowledge. An impractical order to expect? True, perhaps. And although no sources yet found on WAC word their objectives in such a loaded fashion, implicitly WAC does claim to do all the above.

IV. Progress in Developing Research

Over the last two decades, institutions have increasingly not only recognized but have begun to adress the lack of research that quantifies the belief that writing in content areas yields improved learning. For one, the University of Minnesota's Center for Interdisciplinary Studies of Writing sponsored a grant to help disseminate resources to a broader audience of teachers, practitioners and other parties interested in WAC trials, studies, successes, and weaknesses. The resultant literature review by professors Aparna Ganguli and Richard Henry also partly serves to incite other researchers to continue. For instance, one bibliographic entry shares Smith and Gopen's 1990 study that proved how a piloted, writing embedded calculus course helps students increase their complexity of thought through expression by requiring revisions and discussing "writing strategies based on readers' expectations of substance and structure" (Ganguli and Henry 8-9). However, this study and numerous others need follow up studies to weigh any additional value or necessary alterations. At the same time, other individuals and institutions

have publications and websites to serve the same purpose (see Anson, Schwiebert, and Williamson; Palmquist) as the University of Minnesota's grant.

Although most of the research focuses on college-level WAC implementations, secondary schools across the country have sporadically tested WAC endeavors as well. As a result of a 1989 Kentucky Supreme Court decision, which declared the public education system unconstitutional, the legislature passed KERA (Kentucky Education Reform Act) and involved school teachers "in the broadest reform ever attempted by any state in the nation" (Berryman and Russell 76). Kentucky's secondary schools (i.e. Paul Laurence Dunbar High) stand out for taking a WAC perspective on reform because the state chose to require a writing portfolio of all its students (Berryman and Russell) as a way to measure NCBL-type improvements across the schools. As Berryman relays the schools' struggles to implement such a program, the vital importance of quality staff development, support and buy-in from non-English departments and a shift from using writing as an assessment tool to a tool for learning become clear.

V. Staff Development and Support to Sustain Movement

And what educational paradigm would be complete without faculty support, competency and research? Imagine how chaotic and pointless a driving school would be with instructors who did not know how to operate a vehicle themselves or were clueless of the rules necessary for passing a driver's examination.

Faculty workshops and staff development prevent such chaos from undermining a successful (and safe) WAC community. Judith A. Langer, education professor at State University of New York, Albany, most logically realized that "if new activities emphasize one kind of knowledge but teachers have been trained to look for other types of performance as evidence of learning, the new approaches make little difference" (70). In other words, if individuals running their own classrooms are unfamiliar or uncomfortable with how to use WAC then, no matter what else,

the program will not serve students as it should. Consistent with Langer's imperative, Berryman and her colleagues cite dramatic shifts in results: writing awareness increased as twelve of the eighteen content-area teachers changed their assignments to focus on learning through writing (Berryman and Russell 81); teacher buy-in helped "more teachers [to begin] to work with students to improve the writing" rather than to rely on the English teachers to "fix existing content area pieces" (Berryman and Russell 80). With each year of the Kentucky portfolio assessments, more students moved to high proficiency levels (although Berryman and Russell's article does not cite specific numbers or any statistical analysis) due in part to cross-curricular staff support, as the article would imply through its delineation of staff attitude and instructional changes. Certainly the WAC program that Berryman helped develop at her school, Paul Laurence Dunbar High, would not have been as successful if staff development was neglected. Many professionals, including Langer, within the field of teaching recognize the essential connection between staff competency and support of WAC efforts and student success in WAC programs.

Faculty involvement and staff development serve as the engine to drive WAC endeavors forward. WAC calls for instructors to shift their pedagogies to incorporate writing as a tool for learning; students across the curriculum benefit from the "writing to learn" shift. Bonnie B. Spanier, who earned a Harvard University doctorate in microbiology and molecular genetics, believes heavily in WAC contributions toward her students' increased learning. She cites anecdotal evidence:

> In their short reaction papers, students placed themselves into the critical analysis, with comments such as, "I grew to realize the necessity of analyzing data for oneself, and the importance of questioning opinions that are not backed up by facts"... These students are taking an active analytical stance, not that of passive recipients of knowledge. (Spanier 206)

Throughout her essay, "Encountering the Biological Sciences: Ideology, Language, and Learning," Spanier also

argues that allowing students to reflect, connect personally to the science, and articulate their discoveries and questions draws in and keeps minority populations within scientific fields, where the traditional nature of scientific theory and teaching methods have often discouraged such students from pursuing its paths.

Be it driving a car or navigating careers successfully, students must be prepared for all the unknowns and taught the skills to survive. The most salient feature of Writing Across the Curriculum is that, since its inception, it has kept student learning at the forefront. For no matter one's future, one must be able to articulate clearly and must value learning and growth, which is exactly the foundation of all WAC endeavors.

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