

Inclusive Access Course Materials: An Analysis of Waukesha County Technical College's Inclusive Access Program

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Abstract: The rising costs of course materials have higher education stakeholders seeking alternative models to the traditional course materials acquisition model. One model of interest is Inclusive Access. Inclusive Access has had a sudden rise in adoption across the country which has left gaps in the literature as to the effectiveness of such programs. A review of the literature on the effectiveness of Inclusive Access course materials models returned only four published studies. The purpose of this study was to examine the use of an Inclusive Access course materials model and its effects on student success rates at a Waukesha County Technical College (WCTC). WCTC provided student outcome data for 7110 students across six courses. The analysis documented significant differences between the before and after Inclusive Access samples for five of the nine categories examined. Black students (+12.80%), Female students (+3.93%), and Students \geq Age 25 (+3.40%) had the largest increase in success rates when comparing the before and after Inclusive Access implementation populations.

Keywords: Inclusive Access, equitable access, course materials, textbooks, student outcomes

The traditional higher education course materials acquisitions model requires students to acquire their own course materials through their campus bookstore or other sources. Which course materials to use are decisions made by individual faculty members, department chairs, or committees with or without regard for cost or ease of access, a process that has remained largely unchanged for decades (Jensen & Nackerud, 2018; U.S. Government Accountability Office, 2005). This traditional model can create confusion about which course materials to buy, where to buy them, or force students to decide if they can afford the assigned materials (David et al., 2015). Despite a slight downward trend in the last three to four years in costs and student spending, the associated costs of course materials can still lead to students not purchasing their required course materials (Buczynski, 2007; Florida Virtual Campus, 2016; 2018; Vitez, 2018). Furthermore, the cost of course materials can impact student decision-making regarding their educational program or selection of particular courses (Buczynski, 2007; Florida Virtual Campus, 2016; 2018; Martin, et al., 2017; Senack, 2014a; Senack, 2014b; Sikorski et al., 2002). Having access to and obtaining required course materials is important for in-class success because they are still being relied on and are an important component of learning (Buczynski, 2006; Florida Virtual Campus, 2018; Hilton III, 2016; OnCampus Research, 2012).

Through legislation or efforts of institutions, bookstore lease operators, publishers, or interested parties, the cost of and access to course materials is front of mind (Affordable College Textbook Act, 2017; H.B. 2919, 2021; Hurley, 2020). To address these issues, higher education course materials stakeholders have explored course materials models that impact access to and affordability of course materials which include the use of Inclusive Access (Hilton, 2016; Hurley, 2020; Moore, 2021; Spica, 2021; Vitez, 2020).

Inclusive Access is a ‘by course’ course materials acquisitions model through which students enrolled in a particular course have their required course materials provided to them on or before the first day of class (Anderson, 2019). Inclusive Access course materials models use an automatic billing process that charges a student’s Bursar account and generally deliver the course materials digitally through the learning management system so that students have their materials on or before the first day of class (Conole et al., 2020; Anaya & Yankelewitz, 2020; Cuillier, 2018). Laws vary by state, but most states require a student to have the ability to opt out of these programs and source their own course materials as well as receive a refund for the course materials charge or tuition fee (Budnik & Schneider, 2022; Cuillier, 2018). The reduced cost of course materials in an Inclusive Access course materials model can be up to 80% off the retail price of a physical new book price (RedShelf, 2021). Inclusive Access course materials models largely use publisher driven content like that of traditional textbooks (McKenzie, 2017).

In evaluating any course materials intervention, it is important to consider how the model used impacts student course performance/outcomes not just the overall cost savings for a student. This study sought to fill a gap in the literature on the use of Inclusive Access course materials models and their impact on student outcomes. This paper focuses on the student outcome metric of success rate which this WCTC defines as a student receiving a letter grade C or better in a course.

Review of Literature

How and when students obtain their course materials may impact their course outcomes. Some research suggests that access to course materials on or before the first day of class may not be absolutely necessary (Spica, 2021) while others have demonstrated that better and sooner access to course materials may have a positive impact on student outcomes (Agnihotri et al., 2017; Colvard et al., 2018; Feldstein et al., 2012. Hurley & Fekrazad, 2020; Moore, 2021; Williams, et al., 2020). Apart from potential cost savings, the premise of Inclusive Access is to provide sooner/immediate access to course materials upon enrollment in a course which may impact student outcomes (Cuillier, 2018; McKenzie, 2017). This review of the literature covers existing research on the impact of Inclusive Access course materials models on student outcomes.

Inclusive Access Impact on Student Outcomes

A small public university in Texas launched an e-book program in 2010 that served 1,250 students over 100 courses. In 2018, the program had grown to nearly 12,000 students across 1,020 courses. Hurley & Fekrazad (2020) examined student outcome data from academic years 2016-2017, 2017-2018, and 2018-2019 for sections of a course using an Inclusive Access e-book and sections of the same course that did not use an Inclusive Access e-book. Students not using an e-book had a success rate of 80.30% while students using an e-book had a success rate of 84.96%. The study identified three race/ethnicity categories: Black (+3.79%), White (+3.35%), and Hispanic (+5.21%) and sex/gender categories of Male (+6.55%) and Female (+3.92%). All of these categories showed improvement in success rate. Hurley & Fekrazad (2020) stated that all groups reported had statistical significance at $p < 0.05$ when comparing the before and after Inclusive Access implementation populations but did not identify the statistical analysis tool/method.

Chattanooga State Community College examined the impact of the Inclusive Access program within their math department (Williams, et al., 2020). The pre-Inclusive Access implementation population was 7,653 and their post-Inclusive Access population was 22,007. The study used significance testing where z-tests for proportion were used for each student subgroup to compare the pre and post Inclusive Access populations. The overall population had a 9.3% increase in success rates

(letter grades A through C). The study provided three race/ethnicity categories (Black +8.5%, White +8.9%, Other 6.5%) as well as sex/gender of Male (+9.5%) and Female (+8.9%). Further student groups included financial aid (+4.79%), traditional students (+10.2%), and non-traditional students (+3.2%).

Moore (2021) conducted analysis of three courses at a community college in the northeastern United States using an Inclusive Access course materials model. The pre-Inclusive Access implementation population was 1,075 and their post-Inclusive Access population was 1,077. Rather than using the term ‘success rate’ this study used the terminology of letter grade ‘C’ or better. The total population of the study had a 3.88% increase in letter grade ‘C’ or better for students using an Inclusive Access model compared to students who had to source their own required course materials. This study provided four race/ethnicity categories (Black +13.15%, White +1.47%, Hispanic +1.22%, Other +1.59%) as well as sex/gender of Male (+2.31) and Female (+3.24%). Further student groups include traditional students (+2.67%) and non-traditional students (+5.86%). Moore (2021) used multiple 2x2 chi-square test for independence to test statistical significance at $p=.05$.

A study by Spica (2021) examined an Inclusive Access pilot at 13 Tennessee community colleges. The study compared the Fall 2017 and Fall 2018 pre-Inclusive Access semesters and the Fall 2019 Inclusive Access pilot semester. The pre-Inclusive Access population was 87,854 and the Inclusive Access pilot population was 47,462 across nearly 140 courses across multiple disciplines. This study references DFW rates as a measure (letter grade D and F and Withdraws). Spica (2021) used hierarchical linear regression to determine statistical significance between the three semesters analyzed. Overall, there were “no statistically significant improvements or declines in either overall or disaggregated DFW rates (p.10)” when comparing the pilot semester and two previous fall terms.

Three of the four studies in this literature review found increases in success rates in total population or in specific population segments. However, the use of Inclusive Access course materials models has only taken rise in the last half decade (McKenzie, 2017). Therefore, the quick adoption in the use of Inclusive Access course materials models has left a gap in the literature as to the effectiveness of these course materials acquisitions models. As of the date of publication of this study, these are the only four studies found on the impact Inclusive Access course materials models have on student outcomes. With the limited research on how Inclusive Access impacts student outcomes, this study was designed to increase understanding and contribute to the literature on the impact Inclusive Access course materials models has on student outcomes.

Purpose and Research Questions

The purpose of this study was to examine the use of an Inclusive Access course materials model and its impact on success rates at a WCTC. The success rate metric in this study means a student received a letter grade of A through C. This study did not analyze DFW rates because students who received a C- (1.67 on a 4.0 scale) in a class falls outside of the study’s success rate metric definition. This study seeks to help fill the gaps in the literature of how Inclusive Access course materials models impact student outcomes. As Spica (2021) suggested, evidence provided by these studies can help educational leaders and policymakers make important decisions regarding the implementation of such course materials initiatives. To achieve this insight, this study sought to answer the following research questions:

1. When comparing students enrolled in Inclusive Access courses and students who had to source their own course materials, is there a statistically significant difference in the number of students who pass a course with a letter grade C or better?

2. When comparing students enrolled in Inclusive Access course and students who had to source their own course materials, is there a statistically significant difference in the number of students who withdrew from a course?
3. When comparing students enrolled in Inclusive Access courses and students who had to source their own course materials, is there a statistically significant difference in mean final grades?

Background

Waukesha County Technical College (WCTC), located in the Midwest is a two-year college with a focus on occupational training. WCTC is a 100% commuter college serving 16,000 total students (3,500 FTEs) with an even split of male and female students. The average age of the student body is 26 years old and 23% of the students enrolled at WCTC identify as a member of a minority student population.

After continued frustration with students who were enrolled in accelerated programs not having access to the course materials, WCTC began exploring the use of an Inclusive Access course materials model to ensure students would have access to what they needed prior to the start of the course. The journey into Inclusive Access began in the Fall 2016 semester in one section of four unique courses. Upon the backs of a few Inclusive Access champions on the WCTC campus, including the bookstore manager, the adoption of Inclusive Access started to grow. By the Spring 2019 semester, WCTC was offering Inclusive Access in 150 sections across 80 courses. As of the Spring 2022 semester, Inclusive Access is used in 406 sections across 135 courses and impacting 5,928 students (duplicated). The Spring 2022 courses using Inclusive Access accounts for approximately 35% of the courses that require textbooks for the course.

The Inclusive Access course materials model at WCTC is a course-fee based model. This model places the cost of materials into tuition and fees for students. Therefore, students who receive financial aid do not need to wait for financial aid awards to post before having access to their course materials. More importantly, students do not need to go to campus to make purchases or search other sources for their materials because their materials are delivered digitally and immediately available in the learning management system. Originally, Inclusive Access at WCTC was started to address students having access to their course materials. Reduced cost for students was a byproduct of this effort, but what was not known was how this program would impact student outcomes. While cost is an important consideration, this study was conducted specifically to understand how WCTC's publisher content driven, digitally delivered, Inclusive Access program impacted student success rates compared to the success rates of students in the same courses before Inclusive Access was implemented. For this study, success rate is defined as a student receiving a letter grade between A and C.

Method

Participants

Waukesha County Technical College responded to a direct email inquiry to participate in research on the impact of Inclusive Access course materials models on student outcomes. WCTC provided historical, de-identified student data for six classes that followed a traditional 16-week schedule and using an Inclusive Access course materials model that delivered the course materials digitally through the learning management system: College Mathematics, Fundamentals of Mathematics, Macroeconomics, Math with Business Applications, Medical Terminology, and Introduction to

Software Applications. These classes were selected because they started the use of an Inclusive Access course materials model between Fall 2017 and Fall 2018 which provided at least three semesters of pre-Inclusive Access implementation data and three semesters of post-Inclusive Access. This study examined WCTC data from Spring 2015 through Fall 2019. Having multiple semesters of before and after Inclusive Access course materials model implementation data has been suggested as an improvement to current research (Moore, 2021; Spica, 2021).

Table 1. Participant Characteristics – Graded.

Characteristics	Before IA		After IA	
	<i>n</i>	Percentage	<i>n</i>	Percentage
Gender				
Male	1221	40.90	1248	44.81
Female	1764	59.10	1537	55.19
Total	2985	100.00	2785	100.00
Race/Ethnicity				
White	2199	73.67	2078	74.61
Black	291	9.75	218	7.83
Hispanic	280	9.38	284	10.20
Other	215	7.20	205	7.36
Total	2985	100.00	2785	100.00
Learner Age				
Students \leq Age 24	1663	55.71	1705	61.22
Students \geq Age 25	1322	44.29	1080	38.78
Total	2985	100.00	2785	100.00

Data Collection

Data used for this study were historical and already collected and stored in Waukesha County Technical College's student information system. Raw deidentified student data were transferred from WCTC to the researcher via a secure Box. The Box was accessible only to the researcher and designated WCTC representative. Researcher applied for and received IRB approval from Researcher's Institution and WCTC to conduct this study. Researcher's Institute and WCTC provided the researcher with an IRB exemption because the study did not involve human subjects.

Data Analysis

This study used multiple 2x2 chi-square tests of independence to determine if there was a statistically significant difference between students enrolled in an Inclusive Access course materials program or not and their success rate. In this instance, success rate includes students who had received a letter grade of A through C. Students who received letter grades of C-, D or F were not calculated in the success rate metric. Furthermore, students who withdrew from a course are counted separately from the success rate metric. A chi-square test for independence is a reasonable analysis tool to explore the two categorical variables (Pallant, 2016), and previous research examining the relationship between course materials and student outcomes have used a chi-square test of independence (Fischer et al., 2015; Moore 2021). An independent *t*-Test was then used to determine if there was statistically significant difference in mean grades between students enrolled in an Inclusive Access course materials program or not. Previous course materials intervention research has used independent *t*-tests to

analyze mean final grades (Moore, 2021; Ryan, 2019). This study utilized a standard p-value of .05. Thus, a chi-square test or independent *t*-test result of less than .05 will serve as evidence of a statistically significant relationship between the variables (McLeod, 2019; Moore, 2021; Rose, 2014).

Results

The purpose of this study was to examine the impact of an Inclusive Access course materials model on student success rates at WCTC. A total of 7110 students were included in the study. Of the 7110 students included in the analysis, only 5770 received a grade. These students were used in factoring statistical significance for chi-square and independent *t*-test analysis. The remaining 1340 students withdrew from a course and were only factored in the withdrawal analysis. This study did not analyze DFW rates because students who received a C- in a class fell outside of the study's success rate metric definition.

Grade Distribution

Grade distribution was not relevant to this study's research questions, but previous Inclusive Access research has provided it (Moore, 2021; Spica, 2021). A total of 3723 students received a grade or withdrew from a course in the Before IA sample and 3387 students received a grade or withdrew from a course in the After IA sample. Table 2 displays grade distribution between the Before/After IA samples. When comparing the Before/After IA samples, there was a 5.23% increase in letter A grades and a decrease in letter grades B through F. Overall, there was a 2.05% decrease in withdrawals in the After IA sample compared to the Before IA sample.

Table 2. Grade Distribution and Course Withdrawal.

Grade	Before IA		After IA		% Change
	<i>n</i>	%	<i>n</i>	%	
A	1042	27.99	1125	33.22	+5.23
B	866	23.26	785	23.18	-0.08
C	593	15.93	493	14.55	-1.38
D	165	4.43	124	7.62	-0.95
F	319	8.57	258	7.62	-0.95
W	738	19.82	602	17.77	-2.05

Research Questions 1 and 2

To answer the question of statistically significant differences in success rates between Before IA and After IA populations, a 2x2 chi-square was performed on the categories of total population, gender, race/ethnicity, and learner age. The After IA population experienced a 2.75% increase success rate compared to the Before IA population. This was statistically significant ($\chi^2(1, N=5770) = 7.80, p < .05$). Subsequent chi-square tests for Female students ($\chi^2(1, N = 3301) = 9.38, p < .05$), Black students ($\chi^2(1, N = 509) = 9.23, p < .05$), Students \leq Age 24 ($\chi^2(1, N = 3368) = 4.11, p < .05$), and Students \geq Age 25 ($\chi^2(1, N = 2402) = 5.62, p < .05$) showed statistical significance when comparing the Before and After IA populations. The categories of Male students ($\chi^2(1, N = 2469) = 0.78, p > .05$), White students ($\chi^2(1, N = 4277) = 2.31, p > .05$), Hispanic students ($\chi^2(1, N = 564) = 0.052, p > .05$), and Other students ($\chi^2(1, N = 420) = 0.59, p > .05$) showed no statistical significance when comparing the Before IA and After IA populations. The reduction in Withdrawals ($\chi^2(1, N = 7110) = 4.87,$

$p < .05$) when comparing Before IA and After IA populations showed statistical significance. Table 3 displays the results of the chi-square tests.

Beyond chi-square analysis, this study reported the increase/decrease in percentage in success rate when comparing populations. The total After IA population had an increase in success rate of 2.75%. All categories analyzed had an increase in success rate in the After IA population except for the category of Hispanic students (-0.77%), which had a decrease when comparing the Before IA sample and After IA sample. The categories of Black students (+12.80%), Female students (+3.93%), and Students \geq Age 25 (+3.40%) had the largest increase in success rate when comparing the Before/After IA populations.

Table 3. Success Rates by Category.

Category	Before IA Population	After IA Population	Before IA C or Better	After IA C or Better	Percent Change	Success Rate χ^2	Significant at $p < .05$
Total Population	2985	2785	2443	2356	2.75	$p = .005$	Yes
Male	1221	1248	995	1034	1.36	$p = .377$	No
Female	1764	1537	1448	1322	3.93	$p = .002$	Yes
White Students	2199	2078	1868	1799	1.63	$p = .129$	No
Black Students	291	218	179	162	12.8	$p = .002$	Yes
Hispanic Students	280	284	224	225	-0.77	$p = .819$	No
Other Students	215	205	172	170	2.93	$p = .441$	No
Students \leq Age 24	1663	1705	1330	1410	2.72	$p = .043$	Yes
Students \geq Age 25	1322	1080	1113	946	3.4	$p = .018$	Yes
Withdrawal	3723	3387	2985	2785	-2.05	$p = .027$	Yes

Research Question 3

To answer the question of statistically significant differences in mean final grades between Before IA and After IA samples, independent t -tests were conducted on the categories of total population, gender, race/ethnicity, and learner age. Students enrolled in courses using an Inclusive Access course materials model had higher mean final grades ($M=85.94$, $SD=11.85$) than students who were

responsible for sourcing their own required course materials ($M=84.60$, $SD =12.11$), ($t(5755)=4.23$, $p=.00002$). Similarly, there were statistically significant higher mean final grade scores for Female students ($t(3266)=4.47$, $p=.0001$), White students ($t(4270)=2.59$, $p=.01$), Black Students ($t(463)=4.05$, $p=.0001$), Students \leq Age 24 ($t(3360)=2.79$, $p=.043$), and Students \geq Age 25 ($t(2339)=4.01$, $p=.00006$) when comparing the After IA populations to the Before IA populations.

Table 4. Mean Final Grade Scores by Category.

Category	Before IA Mean Grade	After IA Mean Grade	Point Change	Effect Size	t Score p -value	Significant at $p < .05$
Total Population	84.60	85.94	+1.34	0.1	$t=4.23$ $p=.001$	Yes
Male	83.94	84.73	+0.79	0.1	$t=1.63$ $p=.102$	No
Female	85.06	86.92	+1.86	0.2	$t=4.47$ $p=.001$	Yes
White Students	85.82	86.73	+0.91	0.1	$t=2.59$ $p=.01$	Yes
Black Students	76.45	81.03	+4.58	0.4	$t=4.05$ $p=.001$	Yes
Hispanic Students	83.50	84.54	+1.04	0.1	$t=0.99$ $p=.323$	No
Other Students	84.62	85.03	+0.41	<0.1	$t=0.34$ $p=.736$	No
Students \leq Age 24	83.62	87.78	+4.16	0.1	$t=2.79$ $p=.005$	Yes
Students \geq Age 25	85.84	87.77	+1.93	0.2	$t=4.01$ $p=.001$	Yes

There were no significant differences in final mean grades for Male students ($t(2465)=1.63$, $p=.102$), Hispanic students ($t(559)=0.99$, $p=.323$), and Other students ($t(416)=0.34$, $p=.736$) when comparing the After IA populations and the Before IA populations. Table 4 displays the results of the independent t -tests.

Discussion and Implications

This study examined how the use of an Inclusive Access course materials model impacted student outcomes. Results of the chi-square analysis indicated statistical significance in the After IA population compared to the Before IA population for six of the ten categories examined and results of the independent t -tests also indicated statistical significance in the After IA population compared to the Before IA population for six of nine categories.

Race/Ethnicity

The most notable impact in examining the results of the race/ethnicity categories of this study is the impact Inclusive Access may have on Black students and their outcomes. Black students experienced a +12.80% increase in success rate and a mean grade increase of +4.58 points when comparing the Before and After IA populations. These results mirror an Inclusive Access course materials model study conducted by Moore (2021), in which Black students saw a +13.15% increase in letter grade C or better and a mean grade increase of +3.41 points.

The similarities between the methodology and analysis of this study and Moore (2021) may point to a critical interaction for Black students enrolled in courses using an Inclusive Access course materials model. The increase in percent change and mean final grade between the two studies are comparable for race/ethnicity categories of White students, Hispanic students, and Other students. These categories pale in comparison to the impact Inclusive Access appears to have had for Black students. Given the disparity of results between Black students and other race categories, the impact of Inclusive Access course materials models appears to go beyond addressing some of the more traditional obstacles/challenges to higher education for Black students (Bartman, 2015; Kern, 2000; Wood, 2014; Wood & Harris, 2015; Zamani, 2003).

In her work on equity-minded scholarship, Bensimon (2005; 2012) implies that the traditional perspective of the challenges faced by or lack of performance of Black students (and other minorities) is a result of deficiencies with the student. However, she suggests that the real issue is deficiencies in the design structure of institutions of higher education. If one takes this perspective, the results of this study may speak more to the removal of intuitional structural barriers than the deficiencies or lack of performance in the Before IA sample compared to the After IA sample. Therefore, it is possible that the implementation of an Inclusive Access course materials model represents more than reduced cost or increased performance, but a demolition of structural barriers that hinder Black students from having an equitable opportunity to achieve the same success as their peers. This is a strong supposition based on two studies with comparable results and requires further exploration in future Inclusive Access research.

Gender

In this study, Female students (+3.93%) outperformed Male students (+1.36%) when comparing the Before IA and After IA samples. For Female students, these results are similar to other studies that examined the increase in success rates with the use of Inclusive Access course materials models (Hurley & Fekrazad, 2020; Moore, 2021). Male students experienced less of an increase in success rates than other studies that examined success rates with the use of an Inclusive Access course materials model (Hurley & Fekrazad, 2020; Williams et al., 2020). Furthermore, Female students had a mean grade increase of +1.86 points and Male students had a mean grade increase of +0.79 points. These results are similar to Moore (2021) who used an independent *t*-test to examine mean final grades for Female and Male students (+1.01/+0.36). These results indicate that both Female and Male students experience an increase in success rate and mean final grade with the use of an Inclusive Access course materials model compared to Female and Male students who had to source their own required course materials.

Learner Age

A part of the analysis for this study was to understand how the use of Inclusive Access course materials models impacted traditional (Students \leq Age 24) and nontraditional students (Students \geq Age 25). A

student aged 25 years or older is a line of demarcation between traditional and nontraditional students (Ellis, 2019; Fortin et al., 2016; Spica, 2021). In this study, both traditional (+2.72%) and nontraditional (+3.40%) students saw an increase in success rate in the After IA sample. The results for nontraditional students are in line with previous Inclusive Access studies (Moore, 2021; Williams et al., 2020).

Nontraditional students face several academic and completion challenges that their traditional peers may not experience (Bohl et al., 2017; McGraw, 2010; Taniguchi et al., 2005). The consistent results with respect to nontraditional students may indicate that the use of Inclusive Access course materials models helps reduce the challenge of obtaining or accessing their required course materials when coupled with family and work responsibilities.

Practical v. Statistical Significance

Certain categories examined in this study had small increases (<1-3%) in success rate or small increases (<1-2 point change) in mean final grade when comparing Before IA and After IA populations. This leads to questions as to whether the study results are practically significant despite their statistical significance. The only category with an effect size larger than 0.2 is Black students (see Table 4). It could be argued that given the small effect size, there is no practical significance for the results of the study (Bhandari, 2022; Madsen et al., 2016). Despite that argument, it is possible that for some students, these small differences may be enough to move them into a higher grade and further support their academic progress.

Results in Practice

Retention and degree attainment in the two-year college sector has been and continues to be a challenge (Bunce et al., 2019; Clement et al., 2016; Crosling et al., 2009; Tight, 2020; Lee & Choi, 2011). For practitioners in this space, it is incumbent upon them to not only identify but attempt to address those structural and institutional barriers that affect students. At WCTC, time was spent talking about immediate access to and the cost of course materials, in particularly how these barriers can be removed.

As any two-year college practitioner will tell you, time is the enemy of completion in two-year colleges. In the Spring 2020 semester, after the time period of this study, WCTC transitioned to an 8-week academic calendar which provides the opportunity for WCTC students, of which 85% are part-time, to move through their programs more quickly. With the majority of course being offered in an 8-week format, it was essential that students have their materials before the class starts. Inclusive Access ensures that WCTC students have what they need when they need it – not having to play catch up.

Finally, for colleges that have embraced the Guided Pathways framework, and the four pillars within, there should be a focus on removing barriers for all students with a laser focus on underrepresented student populations (Jenkins et al., 2018; Jenkins et al., 2021). The results of this study should cause faculty, deans, and chief academic officers to pause and further explore how and why Inclusive Access has a positive impact on student outcomes and course completion for all student categories, but particularly black students.

Other Models

Inclusive Access course materials models are one of the ways in which higher education is attempting to tackle cost and access, however they are not the only effort. Textbook/e-text rental programs and

open educational resources are being used by college and universities across the country to address cost and access. (Hilton, 2016; Hurley & Carter, 2020; Medley-Rath, 2018; University Bookstore, 2022). This paper did not intend to compare different course materials interventions to each other, but to examine the impact of an Inclusive Access course materials model on success rate at Waukesha County Technical College.

Limitations

This study has some limitations that deserve mentioning outside the possibilities of data errors during extraction, formatting, and reporting. This study was conducted at a singular institution which limits the ability to correlate to other institutions and Inclusive Access course materials models. Furthermore, the study did not take into consideration course modality (online and in-person sections were used in the analysis), instructor changes, changes in assessment, or course assignment/quiz weight. The study neither explored how course materials were used by instructors nor measured student engagement in the course materials. Additionally, there was no attempt made to understand student perceptions of Inclusive Access. This study did not review or attempt to factor a student's overall GPA in the analysis. With respect to external variables, there was no attempt made to collect or consider how external forces impact a student's ability to complete assignments, study, or attend class. With respect to the cost of course materials, there was no attempt made to analyze cost savings or compare the cost of materials in the WCTC Inclusive Access program compared to the cost of materials students may have been able to obtain from other sources – the focus was strictly on student outcomes between the Before IA and After IA populations. An analysis of first-generation and a student's economic status was not included in the study analysis because the information was not consistently available at the WCTC for this sample. This study utilized a 2x2 chi-square and independent *t*-test. The use of another analysis tool may provide another perspective or result on how Inclusive Access course materials models impact student outcomes.

Future Research

This study sought to contribute to the literature on how Inclusive Access course materials models impact student success. While there was statistical significance in chi-square results for six of ten categories and independent *t*-test results for six of the nine categories analyzed, it accomplished its objective. Results in the difference between Before IA and After IA samples for Female students, Black students, and nontraditional students align with previous research (Hurley & Fekrazad, 2020; Moore, 2021; Williams et al., 2020).

This study has suggested that the interaction between Inclusive Access use and performance of Black students could mean more than just reduced cost or improved access to course materials – two main tenants of Inclusive Access course materials models. This requires further investigation and research from a larger sample from a variety of campuses (2-year and 4-year) across the country and/or a mixed methods study that seeks to not only discover outcome changes, but how students perceive the impact Inclusive Access has made on their educational journey. Similarly, this effort would contribute to understanding the appearance of little to no benefit experienced by Hispanics students using an Inclusive Access course materials model. Future research in this area may consider focusing on cultural or perceived cultural norms/challenges that affect a student's study habits and course materials engagement. This effort would also provide an opportunity to explore how instructors who utilize Inclusive Access course materials use and engage the material in class.

It is the opinion of the authors that more research is needed within the course materials initiative space, specifically how Inclusive Access course materials impact student outcomes. This

includes more analysis of DFW rates (letter grade D and F and Withdraws) and/or completion rates (letter grades A through D). Aside from study hypotheses or research questions, future research should consider expanding data samples through multi-campus studies. This effort would provide more data points from various parts of the country. The larger and more diverse sample may provide the ability to generalize the impact Inclusive Access course materials models have on student outcomes. This might provide stronger analysis of individual courses or impact on disaggregated categories, as in this study.

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