**Time-on-Task: A Comparison of Faculty and Student Time Spent in Introduction to Marketing Offered in Three Different Modalities**

**at Eight Different U.S. Institutions**

**Using the Carnegie Unit as a Basis of Measure**

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**ABSTRACT**

The purpose of this paper was to examine how or if the time on task of faculty members was affected by different modalities using the Carnegie Unit as a measure of credit hours. Eight different institutions were randomly identified representing a cross-section of geographic locations, delivery modalities of courses (online, onsite, hybrid), and ownership (private, non-profit, public), with various accreditations (regional and programmatic) and types of degrees granted (community colleges to graduate). Copies of the syllabi for the introduction to marketing course were collected and served as the basis for this study.  The findings supported the literature in that while the time spent by faculty was different with respect to tasks depending on the modality of the course, the time spent overall per course was similar.

**INTRODUCTION**

 When the Carnegie Unit was created in 1906, it was intended to give colleges and universities a foundation for determining what was appropriate in terms of time spent on assignments by the student (Sherman & Colins, 2011; Wellman & Ehrlich, 2003). These time measurements included a combination of the work necessary, both in a class (lecture) and out of it (homework) to master the topic. Throughout the 20th Century, the industry generally settled on a typical 15-week semester as having three hours of “seat time” each week, with the expectation that students would spend six to nine hours per class each week preparing and doing homework. Full time students were, in fact, “full time,” with 12-15 hours each week of seat time and an additional 30-45 hours a week for homework. Today, the federal definition of a credit hour is provided in the Federal Register:

 …a credit hour is an amount of work represented in intended learning

 outcomes and verified by evidence of student achievement that is an institutionally

 established equivalency that reasonably approximates not less than— (1) One hour of classroom or direct faculty instruction and a minimum of two

 hours of out of class student work each week for approximately fifteen weeks for one semester or trimester of credit, or ten to twelve weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time; or

 (2) At least an equivalent amount of work as required in paragraph (1) of this

 definition for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours. (34 CFR §668.8{k} and {l})

 Even though educational techniques have continued to evolve, technology has advanced, and student expectations have changed, the Carnegie unit (a/k/a “credit hour”) has remained a constant unit of measure against which courses, regardless of modality, are compared in order to assure consistency with respect to a generally-accepted understanding of student time-on-task, not only within an institution but across the United States and indeed, the world.

However, not only does the credit hour affect students (credits) and institutions (basis for revenue), but also faculty. As courses are changed and student and institutional expectations shift, it is the faculty who is responsible for managing the gap and translating material within a classroom, regardless of modality. Livingston (2011) noted that “Work stress, emotional exhaustion, and high levels of burnout in faculty members have been associated with decreased productivity, consideration of career changes, and electing to remove oneself from the faculty role” (p. 124) and that these conditions could ultimately impact student learning.

The purpose of this paper was to examine how or if the time of faculty members was affected by different modalities (i.e., face-to-face, online, or hybrid) using the standard credit hour as an expectation of the courses taught. This was especially interesting as faculty contracts, regardless of rank or category (full- or part-time) often have teaching expectations stipulated by numbers of credit hours. There are many variables associated with credit hour definition: Courses, students, delivery method, length of term, and instructional delivery, all of which fluctuate by university type, class size, delivery medium, course level, course content, and program offerings; and, the faculty member is impacted by all of these variables, many of which s/he cannot control.

**LITERATURE REVIEW**

**Modalities and Student Learning**

 At the present time, there appear to be three primary modalities in use within U.S. higher education: on-site (also known as on-ground, brick & mortar, face-to-face), online (also known as virtual, asynchronous, distance, or remote), and hybrid (also referred to as blended), which is some combination of on-ground and online. It has taken 20+ years for online learning to become a recognized and accepted component of the higher education landscape by administrators, students, and finally, faculty, who were not at first convinced that a robust student learning environment was possible in a virtual space. In fact, studies have shown that student learning appears to take place at generally the same pace in two of the three modalities, online and onsite, and is even higher within the blended model depending on the topic, the technology, the course design, and the faculty engagement (Shu-Chen, Lo, Lee, & Enriquez, 2018; Sharifrazi & Stone, 2019; Bahamón & Rorrer, 2020).

**Faculty Activities and Time**

 Throughout the literature examining faculty use of time (Fernet, Senecal, Guay, Marsh, & Dowson, 2008; Cooper, 2018; Polonsky, Juric, & Mankelow, 2003; Lovern & Lovern, 2013; Mandernach, Hudson & Wise, 2013), the general categories identified are some combination of class preparation, teaching, student evaluation (grading and feedback), administrative duties, classroom management, and other complementary tasks such as tutoring or proctoring exams. Other researchers focused on specific topics that appeared to impact faculty time related to their duties. For example, Lovern and Lovern (2013) studied student-initiated communications and the impact on faculty time, Branoff and Wiebe (2008) examined how course design affected faculty time, Tucker King, Keeth, and Ryan (2018) looked at faculty time within a hybrid class and Church and Reeve (2007) compared hybrid courses to online courses using both faculty time and student learning outcomes. Cooper’s research (2018) factored in faculty motivation, as well, as one way to explain time allocation on course-related duties and Polonsky et al. (2003) broke their time-allocation findings down by where faculty were in their respective careers. Milam (2000) compared online and on-ground delivery from the perspective of costs per class and costs/credit hour, which factored in faculty time.

**Onsite vs. Online and Faculty Time**

Lovern and Lovern (2013) compared multiple dimensions of student-initiated communications across modalities and found that 80% of the communications taking place between students and faculty in courses taught onsite were email, 15% in person, and 5% phone/Skype. Those same types of communications represented 73% email, 7% in person, and 3% phone/Skype for online courses and 67%, 26%, and 6.5% respectively for hybrid courses. Emails were categorized as (1) social communication, (2) asking for help, (3) making excuses, and (4) making formal requests. The researchers also found that when measured in terms of numbers of interactions, faculty in face-to-face courses averaged 27 minutes/student over the course of a semester, online faculty spent 35 minutes/student, and hybrid faculty averaged 43 minutes/student.

In a comparison of online to on-ground use of faculty time, Cooper (2018) discovered that while overall class-related time in terms of hours spent each week were similar (29 hours for online faculty and 26 hours for on-ground faculty), the faculty who taught online were spending 11 hours/week on average in evaluation of students and approximately 8 hours/week teaching. On-ground faculty spent the bulk of their time teaching (7.5 hours/week) and in class preparation (7 hours/week). Additional insight was provided by DiBiase (2004) who conducted a three-year study of faculty time-on-task and concluded “that there is a very strong relationship between instructor effort and enrollment in asynchronous teaching and learning. The form of the relationship is positive and increasing, but not necessarily linear” (p. 56) and that as enrollment increases, faculty are forced to find efficiencies that help manage their time-on-task but that these adjustments don’t appear to impact student satisfaction. Polonsky et al. (2003) studied time allocation based on tenure of faculty but found that the population of faculty who participated, as a group, spent approximately 30% of their time teaching, 17% in class preparation, 13% with administrative duties, and professional development/consulting 11%.

**Hybrid, Faculty Time, and Student Learning**

Hybrid courses are defined as those courses that have a significant portion of learning activities moved online and while there is still face-to-face time with students in a classroom setting, it has been greatly reduced (Church & Reeve, 2007). Courses offered in this format require the faculty member to not only approach the classroom setting with traditional expectations, but s/he also must be able to shift perspectives to manage the online delivery of the course material.

 Church and Reeve (2007) took a look specifically at faculty time within a hybrid situation and used data from a large university in Maryland to assess faculty time within two similar courses, one of which was online and one was hybrid. Findings were mixed with respect to faculty preparation time among the two modalities, but it appeared the online faculty were spending 2-5 hours (twice as much time) more per week on classroom-related activities than in the hybrid course. There was no discernable difference between the two modalities with respect to student time spent; however, based on pre-/post-tests administered to the students in both courses, the hybrid model produced indications of higher student learning.

 Tucker King et al. (2018) conducted a study over the course of a term where they followed the piloting of a hybrid writing course compared to a similar course being piloted in a face-to-face environment. They discovered that the hybrid model resulted in better learning as determined by grades and student comments but that the faculty felt much of their time was spent adjusting the curriculum (which would make sense as a pilot course).

 Likewise, Branoff and Wiebe (2008) compared the three types of modalities from the perspective of course design which was intended to develop good study habits and included the use of a required textbook. They discovered that there was no significant difference with respect to student performance; however, the faculty teaching the hybrid section felt a sense of urgency when in the face-to-face portion and tended to overcompensate on delivery of material during those times.

**Research Method**

As discussed, Carnegie is over 100 years old and is rooted in contact and classroom hours. Higher education has evolved and continues to do so from those humble beginnings. By definition, the new models of learning, online and hybrid, do not conform as neatly to contact and classroom hours; thus, research has indicated the best practice is to minimize the focus on delivery method and instead focus on the time on task (Carnegie Mellon University, 2013).

Though much guidance and dialog has occurred on the topic, institutions and accreditors alike still struggle with the Carnegie Unit translation for online asynchronous courses as it relates to faculty and student workload. In a harsh reality of a global economy where the United States is failing in degree attainment (NCES, 2020) and noting that many adults choose online education for its flexibility, it is critical to attempt to reverse attrition rates for an online learner demographic. Taking into consideration that both internal and external factors influence retention (Tinto 1993; Park & Choi, 2007), undergirding online course design with prescriptive brain-based strategies embedded in the course and using Carnegie as the measurement, is an innovative way to adhere to federal regulations while simultaneously holding institutions accountable to course content, rigor, and student learning and why Carnegie is not only higher education’s past but also its future.

There are many variables associated with credit hour definition: courses, students, delivery method, length of term, and instructional delivery, all of which fluctuate by university type, class size, delivery medium, course level, course content, faculty expertise, and program offerings. As per scholarly articles, including those from Carnegie itself, the narrowly focused and prescriptive Carnegie credit hour may not be an accurate determination of the amount of work and time a course requires of every student for every delivery medium Elaine Silva, senior associate at the Carnegie Foundation, stated, “The problem is that, while the universal and portable hour may make for a more efficient system, the unit also promotes the false perception that time equals learning, in the same way for all students. This was never the intent when the Carnegie Unit was first created, more than a hundred years ago” (Silva, 2013, para. 2).

The students are not the only ones put at a disadvantage, however. Faculty workloads are also typically defined by credit hours taught. Just as credit hour definition itself incorporates multiple variables, faculty workloads, especially for those who teach online, are also changing. Today, workload incorporates a mix of direct instruction, student coaching, and grading with little or no functional correlation to the traditional credit hour. A faculty who taught an online course at a brick and mortar university was given a blank course shell in the LMS and was asked to build the syllabus and course. The amount of hours and prep time involved in the content creation of both the subject matter and the technology, with no assistance from an instructional designer was given the same “3 credit hour workload” as that same faculty who was later teaching an online course where the curriculum, instructional design, and syllabus was created by a faculty course owner before her. She needed to prepare less of the course material and focus more on facilitating the course. Yet, by Carnegie Standards they would be considered equal with respect to preparation. It should be no surprise, then, that faculty workloads, driven by institutional productivity expectations, directly impact their ability to fully engage in student-facing activities as well as contribute to overall burnout (Livingston, 2011).

Research indicates three emerging variable methods for how to calculate the amount of time student spend on a specific task. The first method or the *Experiential Method* is where faculty use their experience to estimate the time and effort needed by the typical student to successfully complete each of the learning activities in the class (McDaniel, 2011). The second is the *Proxy Method* where faculty or course calculates how long it would take someone familiar with the material and assignment and multiplies it by some factor. For example, if it takes the faculty one hour to complete an assignment, the student should take 3x as long (Carnegie Mellon University, 2013). The third method is the *Survey Method*. Simply put, the faculty surveys students following various assignments to poll how long it took them to complete a given activity and then use this data to design future activities and courses (Carnegie Mellon University, 2013).

The focus on time on task is an approach taken by the New York State Education Department, Office of College and University Evaluation, in policies for online learning. The following is an excerpt taken from New York State Education Department, Office of College and University Evaluation, Distance Education Program Policies (2020):

Time on task is the total learning time spent by a student in a college course, including instructional time as well as time spent studying and completing course assignments (e.g., reading, research, writing, individual and group projects.) Regardless of the delivery method or the particular learning activities employed, the amount of learning time in any college course should meet the requirements of Commissioner’s Regulation Section 50.1(o) [Carnegie Unit], a total of 45 hours for one semester credit (in conventional classroom education this breaks down into 15 hours of instruction plus 30 hours of student work/study out of class.)

"Instruction" is provided differently in online courses than in classroom-based courses. Despite the difference in methodology and activities, however, the total "learning time" online can usually be counted. Rather than try to distinguish between "in-class" and "outside-class" time for students, the faculty member developing and/or teaching the online course should calculate how much time a student doing satisfactory work would take to complete the work of the course, including:

* Reading course presentations/”lectures”
* Reading other materials
* Participation in online discussions
* Doing research
* Writing papers or other assignments
* Completing all other assignments (e.g., projects)

The total time spent on these tasks should be roughly equal to that spent on comparable tasks in a classroom-based course. Time spent downloading or uploading documents, troubleshooting technical problems, or in chat rooms (unless on course assignments such as group projects) should not be counted.

In determining the time on task for an online course, useful information includes:

* The course objectives and expected learning outcomes
* The list of topics in the course outline or syllabus; the textbooks, additional readings, and related education materials (such as software) required
* Statements in course materials informing students of the time and/or effort they are expected to devote to the course or individual parts of it
* A listing of the pedagogical tools to be used in the online course, how each will be used, and the expectations for participation (e.g., in an online discussion, how many substantive postings will be required of a student for each week or unit?)

Theoretically, one should be able to measure any course, regardless of delivery method, by the description of content covered. However, this is difficult for anyone other than the course developer or instructor to determine accurately, since the same statement of content (in a course outline or syllabus) can represent many different levels of breadth and depth in the treatment of that content, and require widely varying amounts of time (para. 1-5).

McDaniel (2011) reframed the academic credit hour in further support of the New York State Education Department, Office of College and University Evaluation policy focusing on student effort as the foundation of the definition. The notion of student effort validates learning as the critical measure of academic quality. The methodology used by this study is the *Experiential Method,* tying together student effort with time on task while validating it through faculty review. The researchers selected introductory marketing courses to study, as there is little variation across the U.S. with respect to what is typically covered in such a course. Eight different institutions were randomly identified representing a cross section of geographic location, delivery modalities of the course (online, onsite, blended), and ownership (private, non-profit, public), with various accreditations (different regionals and different programmatic) and types of degrees granted (community colleges to graduate). Copies of the syllabi for the introduction to marketing course were collected and served as the basis for this study. Table 1 outlines the index of schools used, specifically the type of school, ownership, level, program, curriculum placement of course, prerequisites and modality. Table 2 indicates the tools used to gather student time on task. Table 3 indicates the tools used to gather faculty time on task.

**TABLE 1**

**INDEX OF SCHOOLS AND COURSES USED IN STUDY: OWNERSHIP, LEVEL, PROGRAM, CURRICULUM PLACEMENT, PREREQUISITES AND MODALITY**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
|  | **Name of Course** | **Type of School** | **Program** | **Curriculum Placement** | **PreReqs** | **Modality** |
| **1** | Introduction to Marketing | O.R. | Business | U3 | N/Jr. | Onsite |
| **2** | Principles of Marketing | O.B. | Business | U3 | Y/GE | Blended |
| **3** | Principles of Marketing | P.R. | Business/minor | U3 | N | Blended |
| **4** | Foundations of Marketing | P.G. | Business/minor | U2 | Y/Macro | Blended |
| **5** | Introduction to Marketing | P.B. | Business | U1 | N | Onsite |
| **6** | Principles of Marketing | O.C. | Business | U1 | N | Onsite |
| **7** | Foundations of Marketing | X.G. | Business | U1 | N | Online |
| 8 | Foundations of Marketing | X.G. | Business | U2 | N | Online |
|  | Type of School Key: (Example: **Type of School**: (Public-Baccalaureate-Online = O.V.B.  |
|  | 1.Ownership: Private=P; Proprietary=X, Public=O |  |  |  |   |
|  | 2.Level: Community College= C; 4-year=B; Graduate=G; Research=R |
|  |  |
|  | Curriculum Placement of course: Undergraduate=U+year |

**TABLE 2**

**TOOLS USED TO GATHER STUDENT TIME ON TASK**

|  |  |  |
| --- | --- | --- |
| **Activity** | **Assignments** | **Estimated hours for average student** |
| Academic Engagement | Listening to or reading course lectures |   |
| Reading additional website documents |   |
| Adaptive Learning/Simulation |   |
| Audio and video |   |
| Participating in discussion and making responses |   |
| Presenting and reading student reports |   |
| Taking quizzes and exams |   |
| TOTAL: should be at least 15 hours credit hour |   |
| Preparation (outside of class) |   |   |
| Required textbooks and other readings: 27 pages per hour |   |
| Reaction/reflection papers and book reports: 1 hour per page. |   |
| Case studies: reading/analysis  |   |
| Research papers: 3 hours per page |   |
| Study for quizzes and exams |   |
| Project, journaling, external web readings, or other assignments |   |
| TOTAL: should be at least 30 hours per credit hour |   |
| Overall Total | 1 Credit hour is equal to 45 hours |   |

**TABLE 3**

**TOOLS USED TO GATHER FACULTY TIME ON TASK**

|  |  |  |
| --- | --- | --- |
| **Activity** | **Assignments** | **Estimated hours for average student** |
| Teaching/Administrative  | Reaching out as needed |  |
| Weekly announcements/Orientation  |  |
| Office Hours  |  |
| Participating in discussion and making responses |  |
| Delivering lectures/video lecture |  |
|   | Total  |  |
| Class Preparation  | Responding to student questions  |  |
| Prepping for lecture/video lecture  |  |
| Classroom Management |  |
| Grading and returning papers  |  |
| Overall Total | 1 Credit hour is equal to 45 hours |  |

**PRESENTATION OF DATA**

 The data developed from examination of the marketing courses with respect to time on task for both students and faculty are illustrated in the three charts Figures 1 through 3. The first chart, Figure 1 below, illustrates the time on task spent by both faculty and students in each type of modality by school. The tasks for each are a composite of learning activities for students and, for the faculty, tasks such as course preparation, lecturing, grading, or answering questions as outlined in the measurement tools above.

**FIGURE 1**

**STUDENT VS. FACULTY TIME ON TASK PER SCHOOL BY MODALITY**

 Figure 2 highlights the time-on-task ratio comparing faculty time spent to student time spent. The points located above zero (i.e., positive values) indicate faculty is spending a larger percentage of time in the course than students and the negative values are a result of more time spent in the course by the students than by the faculty member. Schools numbered 1 through 3 in the grey shading are onsite courses. Schools numbered 4 through 6 in the blue are blended courses. Schools 7 and 8 are online courses. Figure 3 is task on time in totality by student and faculty compared by modality.

**FIGURE 2**

**FACULTY TO STUDENT RATIO OF THE DIFFERENCE IN HOURS OF**

**TIME ON TASK BY MODALITY**

 Key: Grey= Onsite Blue=Blended Yellow=Online

 **FIGURE 3**

**STUDENT VS. FACULTY TIME ON TASK IN TOTAL BY MODALITY**

**DISCUSSION OF FINDINGS**

The purpose of this research was to determine whether faculty time on task varied based on the modality through which the courses were offered. The finding illustrated in Fig. 1 supported the literature in that while the time spent by faculty was different with respect to tasks depending on the modality of the course, the time spent overall per course was similar whether the course was onsite or online. Also, faculty time and student time spent were relatively similar.

The differences, as indicated in the research and supported by literature, were notable in blended courses where faculty time was a little more than what students spent (See Figure 2). The primary surprise that surfaced was the difference in student time on task in the blended courses (See Figure 3). Where the times spent by faculty in the online and onsite courses compared to students ranged from eight to 10 hours per term more than students, the numbers for the blended courses translate to students spending anywhere from nine to 22 hours per term more than faculty. When this issue was explored, it was discovered that two of the three marketing courses showing this dynamic had simulations embedded in the courses, and, if no tasks had been removed when implemented, could explain the increased workloads experienced by those students. One of the courses had 18 course learning goals, which may also have contributed to the need to have so many tasks embedded in it. This situation raised the question whether this could explain why the literature reports higher learning outcomes for students enrolled in blended courses—they are literally spending more time on the content.

 What was not evident was that even with covering two modalities, time on task for faculty teaching in the blended courses fell between the time spent by faculty in on-ground courses and online courses. Because all of the courses studied appeared to be established courses, it made sense that the online faculty actually spent less time due to course development already being done, where campus faculty were expected to prepare courses for each term. In fact, of the three modalities studied, the online sections appeared to come the closest to the expected 135 hours/semester course (45 x 3) (as calculated using Carnegie) for both students and faculty than either of the other modalities, which may raise concerns about expectations for faculty in either classroom or blended situations.

**CONCLUSIONS AND RECOMMENDATIONS**

 The conclusions drawn from this small sample are that as institutions begin to expand offerings online including the expansion of blended courses, driven in large part by the current COVID-19 pandemic, care must be taken to maintain the balance of tasks within a course to assure that students as well as faculty are not overwhelmed by the time a task may take online that is different from the same task performed in a face-to-face setting. Certainly the more accelerated the term, the greater the need to scale the course learning outcomes to a manageable list with care taken that simulations be used to replace assignments, not duplicate them.

 Any of the three modalities have pros and cons and institutions are very fortunate that choices are available and reasonable. Overall, if designed correctly any of the three or combinations of offerings will yield positive student learning outcomes, satisfying to students as well as faculty. It is clear that both faculty and students will rise to the occasion if expectations are reasonable and course content considered in a thoughtful and holistic manner, keeping in mind that it must be balanced with respect to time-on-task considerations for all involved.

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