

# Assessing Face to Face and Online Course Delivery using Student Learning Outcomes

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## ABSTRACT

Many factors have led to the increase of online courses and programs. The concern for educators is assuring the quality of education programs. Therefore, online delivery must continually ensure not only student success but make certain the student outcomes are at least similar. Since online students do not have the opportunity to engage with a dynamic, articulate and knowledgeable instructor, other engagement methods must safeguard student participation. Just as online courses and programs have increased so has technology tools to make work, study and life easier. In this paper, we examine if the tools used to deliver online courses in the Hospitality and Tourism discipline adequately support student learning by comparing the grade distribution of the students between online and face to face delivery.

**Keywords:** Undergraduate curriculum, Distance Education, Curriculum Delivery tools

## 1 INTRODUCTION

Distance learning is one of the most rapidly growing fields of education and it has substantially impacted all education delivery systems (Ghosh, 2012). Few students will graduate from college without having had some kind of online experience or course delivery. In fact many high school students have completed an online course by graduation. The growth of online programs appears to be leveling. According to the Sloan Consortium (2013), the primary reason institutions create online delivery is to increase student access to

education programs. They further find that the primary goal for those institutions most engaged with online learning is increasing degree completion.

The Sloan Consortium (2013) also identifies the barriers institutions cite for online degree delivery. Two key barriers are the students' discipline and faculty acceptance. The easy adoption of technology tools will play a key role in student engagement and faculty acceptance. Online education focuses on the ability of students to have open access to education and training to make the learners

free from the constraints of time and place, and offering flexible learning opportunities to individual and groups of learners. For the purpose of this study, online courses are those in which 100 percent of the course content is delivered online. Face-to-Face courses are those where zero to 10 percent of the content is delivered online. This paper identifies the tools used to deliver online courses in a degree program and examines and compares the measured student learning outcomes.

## 2. BACKGROUND

NCCU is primarily a liberal arts school with approximately 8,300 students. The School of Business offers a bachelor's of science degree in Hospitality and Tourism (HT).

### **Hospitality and Tourism and Online Learning Programs**

The Bachelor of Science (B.S.) degree in Hospitality and Tourism Administration is a professional management program. The HT Program is internationally accredited by the Accreditation Commission for Programs in Hospitality Administration (ACPHA) and the Accreditation Council for Business Schools and Programs (ACBSP). Students majoring in Hospitality and Tourism Administration are prepared to become hospitality professionals who possess the knowledge, managerial skills, and competencies to obtain entry level management positions and assume leadership roles in various aspects of this global and dynamic industry. Students obtaining the hospitality and tourism degree earn 22 semester hours in the business curriculum. The Program maintains a high job placement rate each academic year. Graduates of the program are employed in lodging, food and beverage service, convention and visitors bureaus, event management, resorts, conference centers, cruise lines, and airlines. The program's Mission is to educate and empower a diverse population of students for leadership and professional roles within the global hospitality and tourism industry, through academic excellence, community service, and industry work experience.

The HT area has recently introduced an online degree program which will offer all courses required for the degree via online delivery. The online degree in HT mirrors the face to face curriculum. Faculty members utilize the same course syllabi, books, instructional materials

where possible and measure the same student learning outcomes. Faculty members teaching online courses utilize various teaching methodologies to achieve student learning outcomes. The online degree began offering course work in 2009 and currently enrolls approximately forty-five students. Students enrolled are able to complete all courses online except the culinary courses. These courses are taken at the University or at an approved community college in the student's hometown or near-by community. National Certification examinations are proctored by certified proctors.

The program was developed to facilitate hospitality industry professional working full-time and desiring to complete their bachelor's degree and those who had begun their degree, and could not finish it due to various reasons. The online degree has attracted a diverse population of students who are working full-time in the industry; those who are changing careers and traditional students who need the flexibility to take courses while completing a special practicum, internship or balancing family and school. The program benefits from the diversity of students in both the online and face to face. Traditional students are in dialogue with non-traditional students and developing in some cases, bonding and mentoring relationships. These relationships as expressed by students have facilitated a win-win situation as each student in the relationship brings their strengths as they each work toward common goals.

In order to continually assess the effectiveness of this online degree program, we must be keenly aware that the education provided in the online program equals or exceeds the face to face experience. Among the questions we wanted answered initially were:

- Specifically, how do we deliver the same content?
- How do we measure success?
- What tools will give us the best result?

In this paper, we specifically address the effectiveness of using tools to deliver online content by comparing the learning outcomes of those courses which were taught face to face as well as online.

### 3. LITERATURE REVIEW

Measuring student outcomes in face-to-face and online course delivery has been examined in controlled Meta studies (Means, et al 2010) as well as real time data from those teaching both face-to-face and online courses (Sussman and Dutter, 2013). Other studies measure student satisfaction and rating of instruction. Many studies conclude that student satisfaction and learning are not statistically different when comparing face to face to online learning experiences. However, the role of technology and ability of the instructor to create a similar experience plays a key role (Finley, et al 2004).

The significance of online learning in HT higher education programs is examined in a 2012 study by Scairini, Beck and Seaman. Their study examined 5 key questions:

- Is online learning strategic?
- What proportion of HT programs offer courses in either a blended/hybrid or full online format?
- Are learning outcomes perceived to be comparable for online versus face-to-face?
- How does online education compare to face to face instruction across specific pedagogical metrics?
- What is the future of HT online enrollment growth?
- 

All of these questions are important for HT educators. What is most significant is that almost half of the respondents agreed that there is increasing competition for online students. It is also interesting that nearly 80% of the respondents in the study perceived online instruction as superior to face to face.

A study by Sciarina, M., Beck, J and Seaman, J (2012) assessed online learning in HT in Higher Education as a descriptive report, the study comprised data from 231 respondents representing administrators of hospitality and or/ tourism programs from 37 countries inclusive of the United States. The findings revealed that chief academic officers rate the learning outcomes for online education "as good or better" than those for face-to face instruction, but a consistent and sizable minority consider online to be inferior online to be inferior. The finding also revealed that hospitality administrators better than 80%

considered online instruction superior to face to face when it comes to scheduling flexibility for students as well as the ability of students to work at their own pace.

Crawford and Weber (2011) assessed the current climate of hospitality management distance education programs, delivery methods, student performance, student satisfaction, and accessibility. The study reported that Machtmes and Asher (2000) found little difference in distance education and traditional students on how well they achieved in the courses. Crawford and Weber (2011) further reported differences in the views of traditional and distance education students as discussed by McDowal and Lin (2007) in the distance education literature. Traditional students were reported to feel more comfortable with a teacher present in the classroom and that the quality of the teaching was dependent upon the presence of an instructor. Distance students tended to experience barriers that deterred course completion which included technological challenges, social communication challenges (Howard, 2002), and ultimately may cause the student to not complete the course.

Urtel (2008) assessed academic performance between traditional and distance education course formats. The findings revealed that students enrolled in the distance education course did not automatically perform equally as well, or even better, than as if they were in a face to face course. While age is considered a predictor in enrolling in distance education course versus the face to face, it was not a predictor in subsequent academic success. This study also revealed that students classified as freshmen are at risk and earn a disproportionate of DFW's when taking the class as distance education than their freshmen peers who take the class as a face to face course (65% vs 35%).

Hiltz et al. (1999) reported no difference in grade distribution when comparing face to face with online approaches to delivery. Waschull (2001) similarly reported no significant difference in examination performance when he compared students' abilities when studying online with their on-campus performance for corresponding section of the same course. Kenny (2001) in a study of examination performance of an online versus face to face section of the same course, he reported that

with one exception, the online classes "enjoyed no significant advantages or disadvantages compared to face to face that had all their examinations in a standard classroom. He also stated that that the results did not indicate any significant difference in the quality of learning between the two delivery methods.

Dutton, J, Dutton, M, and Perry, J (2002) studies how online students differ from lecture students, the results of their study revealed that online students are older and are likely to be lifelong learning students, are likely to have a job and/or childcare responsibilities, and are more experienced with computers. Online students listed conflict with work and flexibility in studying as being more important than lecture (face to face) students. Online students rated contact with instructor and fellow students, motivation from class meetings, and need to hear a lecture as more important to them. Online students frequently reported advice from university advisors as being important. Dutton et. al. (2002) reported online students made significantly higher exam grades than lecture (face to face) students, and the course grades for online students are higher, but the effect is not significant. The study also revealed that undergraduate status, work status, and computer experience had larger effects on online (face to face) students than online students. However the differences were not significant.

#### **Tools in Online Education**

It is reasonable to assume that most online educators would bristle at the notion that delivery of an online course is merely taking face to face content and organizing it in an internet accessible blackboard. Many in fact would likely agree that delivering a successful online course is challenging. The use of technology and tools to deliver an online course is crucial for success.

There are many specialized and integrated tools used in web based learning. A wide range of tools include commonly used tools such as course management systems, virtual classrooms and instructor videos and lectures. Finlay et al (2004) attribute use of technology as well as instruction to student satisfaction.

Technology, in particular mobile devices, is ubiquitous. Examination of this technology is in its infancy and the relationship between mobile devices and online learning is not clear.

Smith and Walters (2012) examined mobile learning in a small student study as a way to engage HT students. The importance of this study is that the participants saw student engagement as an advantage for online learning.

#### **4. DATA COLLECTION**

In our effort to compare learning outcomes between face-to-face and online delivery methods, we chose four different courses that were delivered both in online and face-to-face settings over fall 2012 and spring 2013 by the same instructor in the HT area. These courses were: HADM 1000- Introduction to Hospitality, A survey of the hotel, restaurant, and tourism industries; their history, problems, general operating procedures, management functions, service excellence, and business protocol; HADM 2000 Introduction to Travel and Tourism, a basic understanding of domestic and international trends in travel and tourism to include: the terminology, demographics, historical, economical, social-cultural, and environmental trends related to tourism management and sustainable development; HADM 3500- Travel and Tourism Planning, an overview of integrated tourism planning for organizations; the development and evaluation of systems approach to comprehensive tourism projects, and the consideration of advanced concepts, policies, approaches, and models in regional and national tourism development; and HADM 4200 Hospitality Sales and Marketing, an overview of service marketing as applied to the hospitality industry, including but not limited to: unique attributes of service marketing, consumer orientation, understanding consumers and consumer behavior, market segmentation principles, target marketing, product planning, promotion planning, market research, and competitor analysis.

The online and face to face courses were taught by the same instructor with common course syllabi, content, projects, case studies, examinations etc. End of the semester data was collected for each course to include: scores for examinations, projects, case studies, grade distribution scores and student ratings of instruction. Common instructional technologies included video lectures, power point, You-tube video webinar, discussion board, case studies, trend tracking and quizzes and examinations.

Students enrolled in the online degree program in hospitality represent students who are typically non-traditional, those individuals who are working in the industry, changing careers or seeking to become entrepreneurs. In fall of 2012, the university experienced an increase in the freshmen class; therefore, the HADM 1000 online class enrolled a high number of freshmen students taking the class as an elective.

and compared the grade distribution between online and face-to-face delivery methods.

### 5. DATA ANALYSIS AND RESULTS

As a part of our study we captured the data on different interactions between the instructor and students and also among students for both face-to-face and online courses. A description of the type of interactions and tools and technologies used for each of the courses are presented in Table 2 of the Appendix.

The data was analyzed using an independent 2 sample t-test to compare the grade distribution data and difference between means. Summary of the results of the t-test are presented in Table 1 . Detailed results and box plots of the data are also presented in the Appendix. As is evident from the results, there is no significant difference in the grade distributions in 3 of the four courses that were compared for online and face-to-face instruction delivery. However, in course HADM 1000 a significant difference was observed between the mean grades for the two sections. While the mean GPA for the online section was 2.17, the mean GPA for the face-to-face section was significantly higher at 3.16 with a p value of 0.01. This finding suggests that online delivery tools need to be improved further and need to be utilized more effectively for this course. Also, overall comparison of all four courses when taken together reveals significant difference between the online and face-to-face method of delivery. The face-to-face method of content delivery results in a significantly higher mean GPA of 2.86 compared to mean GPA of 2.43 for online method of delivery.

**Table 1. Summary of t-test data for mean comparison between online and face-to-face methods of course delivery.**

**n= number of students in each section**

\* indicates significant difference at P=0.05

	<b>Mean Face-to-face</b>	<b>Mean Online</b>	<b>SD Face-to-face</b>	<b>SD On-line</b>	<b>P value</b>
<b>HADM 1000</b>	3.16* n=19	2.17* n=12	1.01	0.94	0.01
<b>HADM 2000</b>	2.5 n=14	2.25 n=20	1.4	0.97	0.54
<b>HADM 3500</b>	3.2 n=15	3.5 n=14	0.94	0.85	0.38
<b>HADM 4200</b>	2.53 n=17	1.87 n=15	0.72	1.55	0.12
<b>All four courses</b>	2.86* n=65	2.43* n=61	1.06	1.24	0.04

The grade distribution of each section for the same course was then used to compare the online vs. face-to-face learning outcomes consistent with the methodology used by Sussman and Dutter (2013). We also aggregated the data across all four courses

### 6. DISCUSSION

This study compared grade distribution data using an independent 2 sample t-test to determine if there were differences between online and face-to-face method of delivery. The face-to-face method seems to be more effective for content delivery as compared to online delivery in its current form. Newer and perhaps more effective tools need to be investigated and utilized by the HT area to engage students more successfully and to promote higher levels of learning.

An interesting finding in our analysis is that significant differences in the mean results exist between online and face to face sections for

the student population in the freshman level course while the differences for higher level courses is not significant. Therefore it is important to determine how to engage the younger student. While it can be argued that the students in online vs. face to face self select the delivery modes and hence the differences exist between the two groups, our results and analysis shows otherwise. As has been mentioned in the literature survey section Dutton et al. (2002) and the data collection section of this study, there is no significant difference between our online and face to face student populations in terms of their admission criteria and their potential in meeting their educational goals. If anything our online student population is expected to be more responsible as it consists of more non-traditional students.

Future research will investigate the use of mobile tools and interactive activities. In particular more real time discussion in chat room, short videos and same time different place techniques will be investigated.

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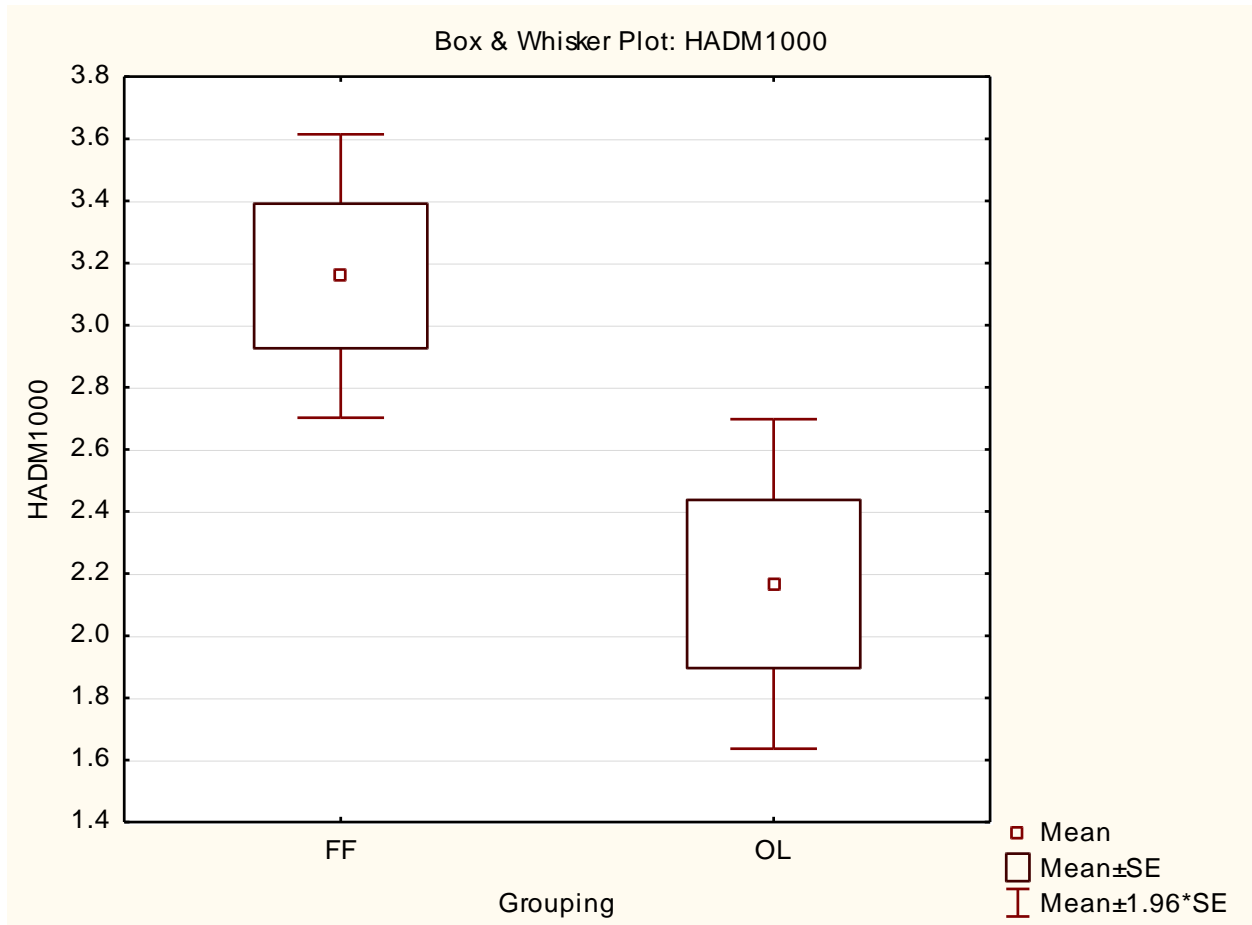
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psychology courses: attrition, performance

**APPENDIX**

**Table 2. Description of Interactions and Tools used in Face- to-Face and Online Course Delivery**

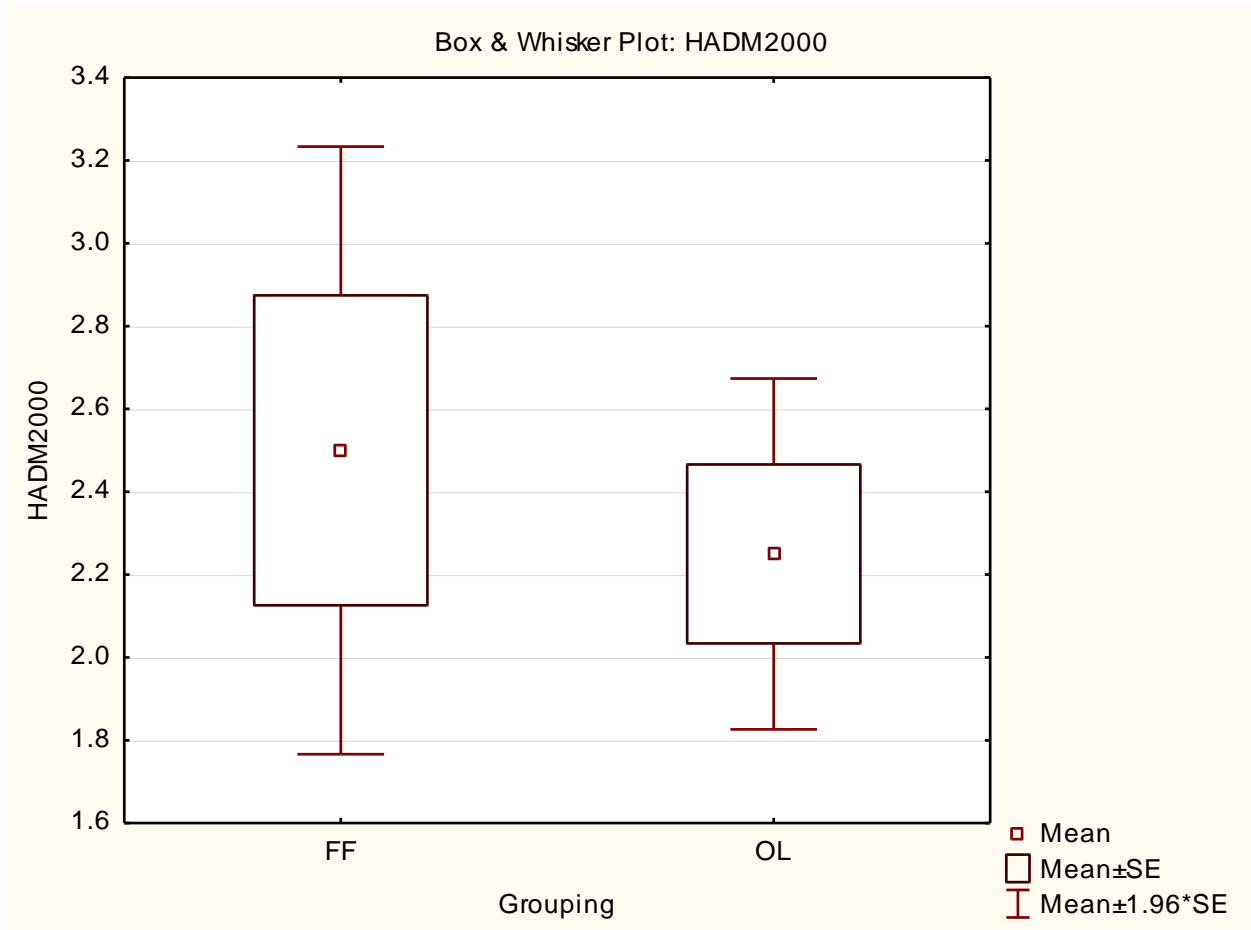
<b>Courses</b>	<b>Interactions/ Tools &amp; Technologies</b>	<b>Interactions/ Tools &amp; Technologies</b>
	<b>Face-to Face</b>	<b>Online</b>
HADM 1000	PowerPoint Presentations, Quizzes, Exams, Face-to-face consultations, video presentations, class lectures	PowerPoint Presentations, Quizzes, Exams, One-on-one phone consultations, video lectures, video consultations (Skype, Any meeting)
HADM 2000	PowerPoint Presentations, Quizzes, Exams, Face-to-face consultations, Career Advisement, video presentations, class lectures	PowerPoint Presentations, Quizzes, Exams, One-on-one phone consultations, You Tube Presentations, TED Talks, Video webinar recording, Trend of the week postings
HADM 3500	PowerPoint Presentations, Quizzes, Exams, Face-to-face consultations, video presentations, class lectures	PowerPoint Presentations, Quizzes, Exams, One-on-one phone consultations, video lectures, video consultations (Skype, any meeting)
HADM 4200	PowerPoint Presentations, Quizzes, Exams, Face-to-face consultations, Career Advisement, video presentations, class lectures, Discussion Board Interactions for case studies, Trend Tracking activities, Anymeeting webinar, Email interaction	PowerPoint Presentations, Case Studies, Quizzes, Exams, One-on-one phone consultations, Video Lectures , Discussion Board Interactions for case studies, Trend Tracking activities, Anymeeting webinar, Email interaction
Note: Students were required to use technologies such as Prezi, Powerpoint, VOPP and Video Presentations in delivering the assigned work for all courses.		





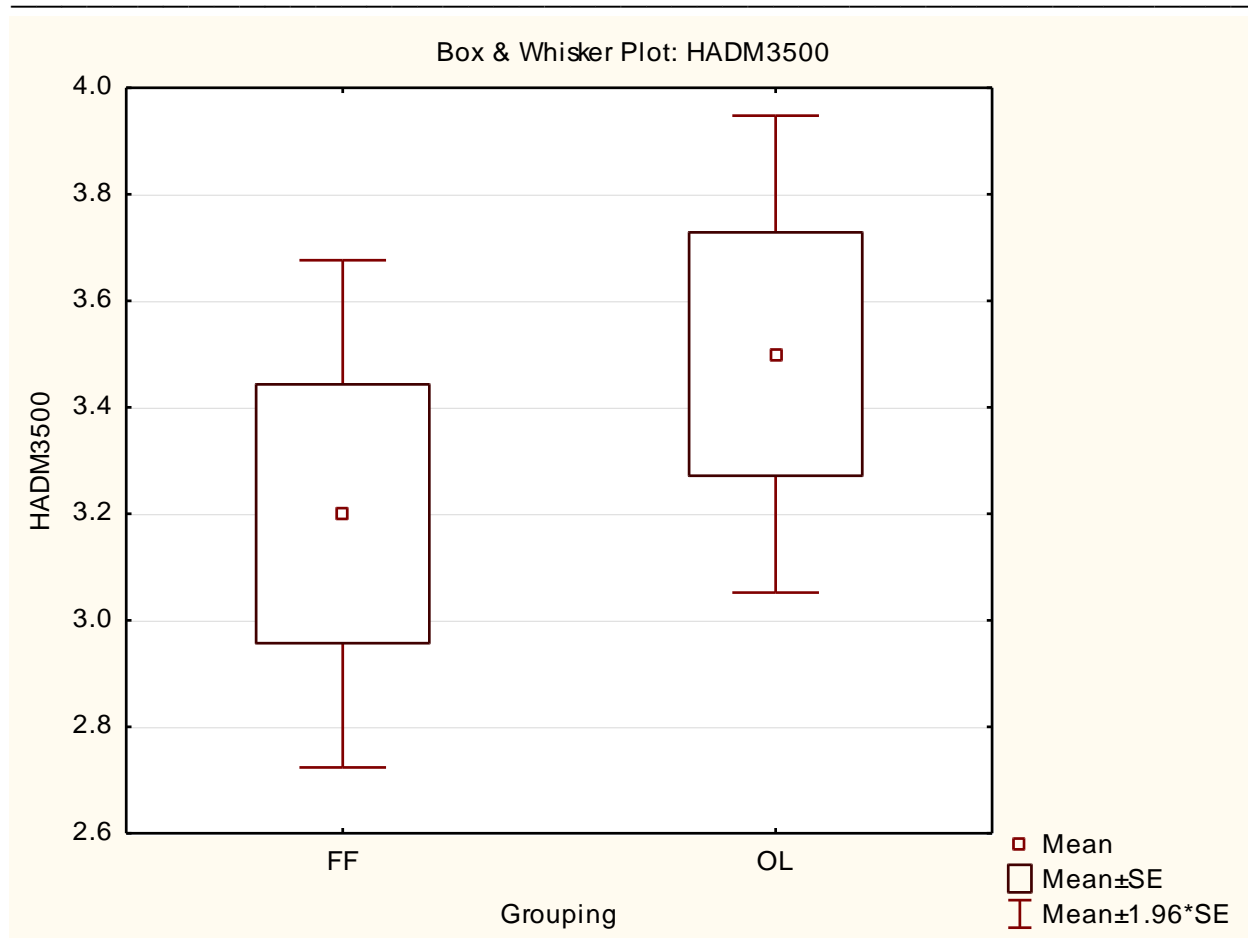
T-tests; Grouping: Grouping (assessmentcompare)											
Group 1: FF											
Group 2: OL											
Variable	Mean FF	Mean OL	t-value	df	p	Valid N FF	Valid N OL	Std.Dev. FF	Std.Dev. OL	F-ratio Variances	p Variances
HADM1000	3.157895	2.166667	2.726394	29	0.010748	19	12	1.014515	0.937437	1.171204	0.809580



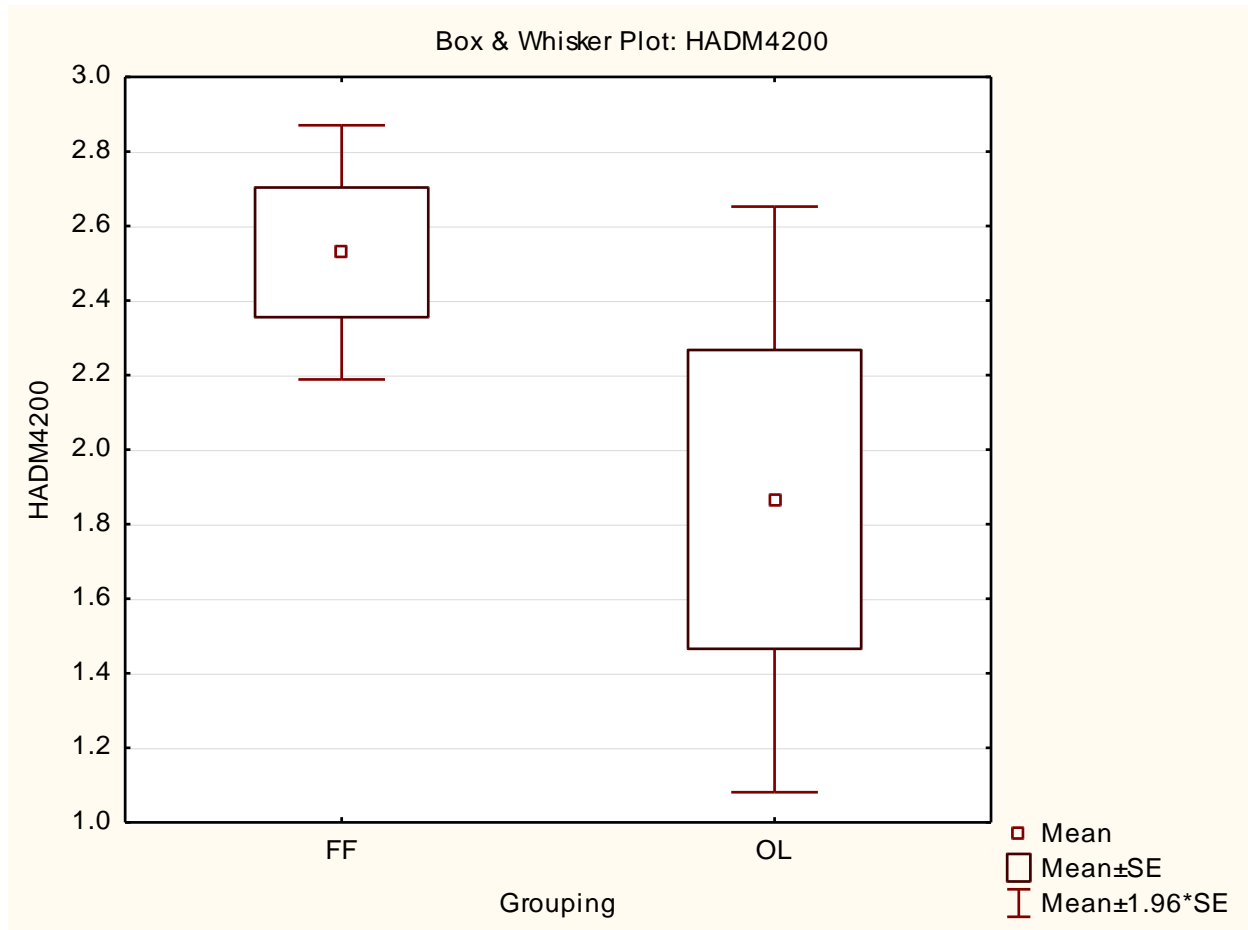


T-tests: Grouping: Grouping (assessmentcompare)											
Group 1: FF											
Group 2: OL											
Variable	Mean FF	Mean OL	t-value	df	p	Valid N FF	Valid N OL	Std.Dev. FF	Std.Dev. OL	F-ratio Variances	p Variances
HADM2000	2.500000	2.250000	0.617108	32	0.541530	14	20	1.400549	0.966546	2.099675	0.137894



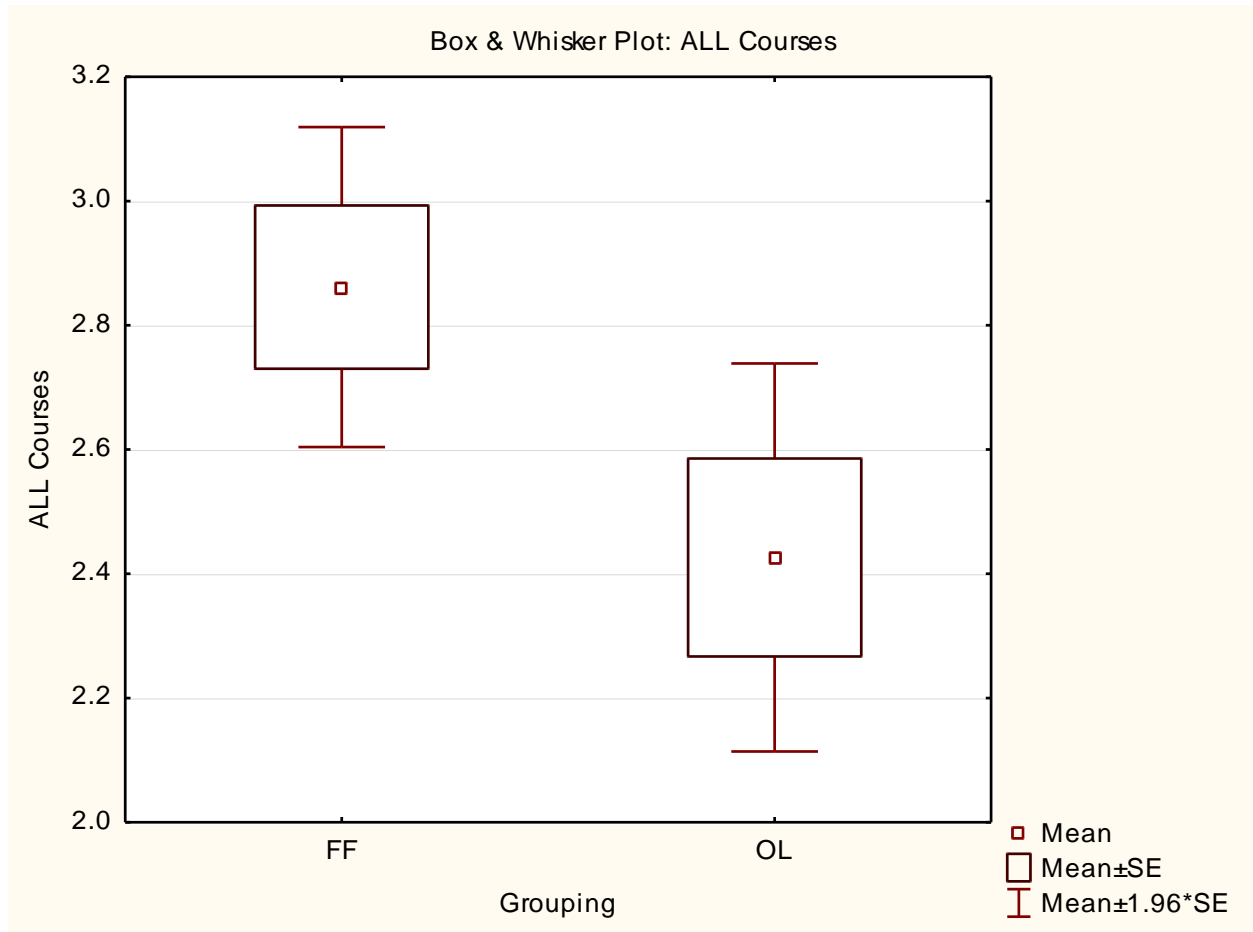


T-tests; Grouping: Grouping (assessmentcompare)											
Group 1: FF											
Group 2: OL											
Variable	Mean FF	Mean OL	t-value	df	p	Valid N FF	Valid N OL	Std.Dev. FF	Std.Dev. OL	F-ratio Variances	p Variances
HADM3500	3.200000	3.500000	-0.896379	27	0.377973	15	14	0.941124	0.854850	1.212030	0.734539



T-tests: Grouping: Grouping (assessmentcompare)											
Group 1: FF											
Group 2: OL											
Variable	Mean FF	Mean OL	t-value	df	p	Valid N FF	Valid N OL	Std.Dev. FF	Std.Dev. OL	F-ratio Variances	p Variances
HADM4200	2.529412	1.866667	1.581757	30	0.124192	17	15	0.717430	1.552264	4.681361	0.004217





T-tests; Grouping: Grouping (assessmentcompare)											
Group 1: FF											
Group 2: OL											
Variable	Mean FF	Mean OL	t-value	df	p	Valid N FF	Valid N OL	Std.Dev. FF	Std.Dev. OL	F-ratio Variances	p Variances
ALL Courses	2.861538	2.426230	2.119020	124	0.036083	65	61	1.058846	1.244441	1.381286	0.204752



