# THE EFFECTS OF SYLLABUS DESIGN ON INFORMATION RETENTION BY AT-RISK FIRST SEMESTER STUDENTS

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# **INTRODUCTORY ESSAY**

Researchers have examined and researched most aspects of the educational experience, however, one component has been neglected, the syllabus, specifically, the functional design of the syllabus. In architectural terms, there is a debate regarding form vs. function. In education research literature, the functionality of the syllabus has been researched much more than its form. Syllabi are a common element found across institutions of higher education; however, students are not necessarily reading or retaining this important information. Today's students communicate using multimodal means, such as through graphics and text. Whereas words and text are the primary sources of knowledge in academia, images function merely as illustrations. The following quantitative investigation explored whether an infographic syllabus design had an impact on the retention of course information presented in the syllabus.

The cognitive theory of multimedia learning (CTML) formed the theoretical framework for this study. A quasi-experimental approach was utilized where the control group received only the traditional textbased syllabus; and, the two experimental groups received an infographic addendum along with the traditional text-based syllabus. The students were tested both at three weeks and at ten weeks to determine if syllabus design impacted the retention of the syllabus information over time.

Study participants were first-semester freshman at a regional campus primarily serving individuals identified as academically at-risk. A series of ANOVA tests were conducted to answer the following questions: (a) does syllabus design impact the retention of course syllabus information, (b) do graphics impact course syllabus information retention, and (c) does color impact course syllabus information retention of syllabus design and graphics promote the retention of syllabus information over time.

# **OVERVIEW OF THE LITERATURE**

Today's students communicate using multimodal means incorporating graphics, text, and audio. Academia's primary utilization of a text-based course syllabus is contrary to the traditional students' preference for multimodal communication. This disjucture may be one reason for students' lack of retention of the syllabus's critical information related to the course requirements and ultimately the lack of student engagement (Thompson, 2007). The question then becomes, if course materials such as the syllabus are designed to utilize the students' multimodal learning preferences, would learning be enhanced?

#### SYLLABUS OVERVIEW

A syllabus is a document that fulfills multiple roles within education. Syllabi are one of the oldest and most recognizable instructional tools and are an inherent and expected aspect of the college experience (Afros & Schryer, 2009; Fink, 2012; Husen & Postlethwaite, 1985). The definitions of 'syllabus' found within the literature research range from a broad definition to one with a narrow scope. This definition also varies from being geared toward the student's role and activities, to one that guides the instructor. For this study, the definition is as an overall course plan for the student (Fink, 2012).

Syllabus research has primarily focused upon the discrete parts of a syllabus. A syllabus primarily is viewed as an outline for the student that demonstrates the efforts of the faculty member to plan and prepare a quality course (Berrett, 2012; Fink, 2012; Tokath & Kesli, 2009). Grunert (1997) outlined seventeen component parts that should be present in any syllabus. These components include the title page, a table of contents, instructor information, a letter to the students, the purpose of the course, course description, course and unit objectives, resources, readings, course calendar, course requirements, evaluation, grading procedures, instructions on how to use the syllabus and how to study for the course, content information, and learning tools (p. 24). These components are only a guide; therefore, the make-up of individual syllabi is highly variable (Afros & Schryer, 2009; Sidorkin, 2012). What generally is not acknowledged is that much of the content in a syllabus, such as student learning objectives, are handed down from one generation of faculty to another (Cardozo, 2006).

When considering syllabi, it is important to understand that they serve multiple audiences and purposes. Syllabi are basic to teaching; however, they are as individualistic as the instructors who create them (Rubin, 2013; Sidorkin, 2012; Wasley, 2008). They play an important role, not only in teaching and learning, but also serve as documentation of scholarly excellence to a variety of entities both within and outside the institution (McDonald, Siddal, Mandell, & Hughes, 2010; Sidorkin, 2012; Snyder, 2002). When the critical function of the syllabus, as identified by the faculty, is contrasted with the student's learning preference, a disconnection is evident. Instructors use the syllabus to define learning outcomes, identify how those outcomes will be assessed, and what specifically must be accomplished to successfully complete the course (Afros & Schryer, 2009; Becker & Calhoon, 1999). Instructors are focused on pedagogical concerns and anticipate a deep study of the course material. Students, on the other hand, take a surface approach and are more focused upon tangible items such as the layout of information and format (Price, 2007). Students prefer a syllabus they can navigate through quickly so they can determine if they want to stay in the course. The preferred syllabus design highlights key items of interest such as how grades are calculated, and does not include information that can be obtained through other sources, such as withdrawal policies (Becker & Calhoon, 1999; Brink, 2009; McDonald et al., 2010).

#### MILLENNIAL STUDENTS AND TECHNOLOGY

Current students in higher education are a unique group. They have been called by many terms: the Net Generation, the Google Generation, Millennials, Generation Z, Generation Y, Echo Boomers, Nintendo Generation, Digital Natives and Nexters (Bracy, Bevill, & Roach, 2010; Hartman & McCambridge, 2011; Helsper & Eynon, 2010; Howard, 2011; Margaryan, Littlejohn, & Vojt, 2011; McGee, n.d.; Prensky, 2009).

For this paper, the term millennial will be used. Millennials make up the largest cohort of students currently enrolled in US colleges and universities; however, this group is not homogenous. They are very diverse in their skills, their educational needs, and their expectations (Bennet, 2012; Hartman & McCambridge, 2011).

Of interest in this study are the millennial students who have been identified as "at-risk." The No Child Left Behind Act (2002) established parameters for the determination of academic rigor (Schnee, 2008). These students are individuals with contributing factors that can and do impact retention. There is not one single definition or standard for the determination of who are classified as "at-risk" or under prepared (Mulvey, 2009). The factors for student non-completion include ethnicity, disability, socioeconomic status, low standardized testing scores, mental health issue, and first generation students (O'Keeffe, 2013). The ability of an individual to assume the role of a higher education student is critical to retaining them beyond the first year, especially those classified as "at-risk". A challenge is that "at-risk" students deal with a combination of high levels of stress and poor self-worth as they are low-achieving comparative to peers (Sandoval-Lucero, 2014; Weisburg, Hirsh-Pasek, Golinkoff, & McCandliss, 2014).

It is a digital world; therefore, millennial students have had more technological exposure than previous generations and are generally more connected via technology. Millennials have always had access to their technologic gadgets, including cell phones and computers, and are lost without access to them (Department of Education, 2010; Scheid & McDonough, 2010; Worley, 2011). As they are so technologically attuned, this impacts both the type and manner of communication they prefer (Bracy et al., 2010; Geck, 2006; Hartman & McCambridge 2011; Howard, 2011; Sweeney, 2006). This shift is directly related to the nature of technology and how millennials utilize technology to absorb information (Hummerston, 2008; Spalter & van Dam, 2008). While millennials learn to contend with their limitless options, their attention span has decreased significantly, as they quickly sort through enormous amounts of information (Finch, 2015). Finch (2015) indicates that this group has developed what he terms as 'eight-second' filters, where they turn to compilation or trending pages within apps to collect information to be consumed in a finite amount of time.

# **MULTIMODAL COMMUNICATION**

In multimodal communication, both text and images are an integral part of message design. A multimodal text conveys the message through a combination of written language and visual image. This message is influenced by an individual's personal experiences, prior knowledge, and socio-cultural contexts (Serafini, 2012). Pictures and text serve different purposes, yet also complement each other and contribute to an individual's creation of a mental model of the information in the message (Eitel et al., 2013). Images are used as a non-verbal means of representing objects, experiences and feelings, whereas text utilizes a verbal code to convey the message e.g., long or short phrases or spoken directions (Boutin, Lacelle, Lebrun, & Lemieux, 2013; Burmark, 2002; Eitel & Scheiter, 2015). Text expresses information, but it is difficult to create a spatial mental picture solely on text. Pictures provide spatial context and detail to that information (Eitel, Scheitier, Schuler, & Nystrom, 2013). The use of visuals in conjunction with text provides the learner with two sources to draw information from and thus context. The interaction between the two modalities of communication provides a type of association between the two modes and facilitates comprehension and learning (Eitel & Scheiter, 2015; Erfani, 2012).

For learning and retention of the material to occur, information must be organized into a logical framework that allows for generalization of observation and the creation of a context with prior learning into memory (Mayer, 2014; Nilson, 2007). A syllabus designed using both text and graphics should help students to clarify the logical flow of concepts and various relationships within the information will be highlighted, ultimately promoting the integration of that information into new knowledge (Nilson, 2007; Levitin, 2014; Restak, 2003).

#### **COGNITIVE THEORY OF MULTIMEDIA LEARNING**

A number of theoretical frameworks were considered for this study including visual literacy, information processing theory, dual coding theory, working memory theory, and cognitive load theory. The cognitive theory of multimedia learning (CTML) incorporates many of the principles and functions from these various other theories. However, it also expands to address specific aspects related to multimodal communication. In the CTML, Richard Mayer specifically defines multimedia as a message that is presented utilizing both pictures and words designed to foster learning (Mayer, 2002; Mayer, 2014). This theory is concerned with bimodal or multimodal message design, however, terms it a multimedia.

There is a direct relationship between what we see and process, with what we think (Moore, 2003). The CTML addresses how an educational message is presented, specifically combining pictures and text in a manner that fosters information retention and learning (Mayer, 2002; Mayer, 2014). This theory was the foundation for this study as it addresses both message design and the impact of design on long-term retention and recall of information. The primary assumption of the CTML is that individuals achieve a deeper understanding and retention of information when it is presented utilizing both verbal and pictorial representations (Mayer, 2002; Mayer, 2014). The major focus of instruction is to expand the knowledge of the student and encourage that knowledge to be stored within long-term memory. When information is presented using a multimodal framework, the students learn in a deeper fashion, with more information stored in long term memory, than when the information is from a single source—specifically verbal (Mayer, 2002). The assumption is that when materials are presented both verbally—text-based (written or spoken), and pictorially—pictures/graphics/videos/animations, the learner has twice the opportunity and exposure to the information and is able to use two information processing systems to retain the data (Mayer, 2014).

The one theme noted in much of the literature is that the provision of materials in a multimodal manner is both desired and expected by millennial students. Multimodal information has had strong pedagogical support as a preferred teaching method for children since the first pictorial instruction book in 1658 by Comenius titled *Orbis Pictus* (Mayer, 2014). The issue is that education, especially higher education, is bound by tradition, so the predominant manner of presenting information remains via one mode—verbal or text-based (Greenfield, 2003; Mayer, 2014).

Students currently attending higher education institutions have come to expect visually focused information due to their immersion in technology. Research has demonstrated that illustrations help novices grasp information, especially when it is supported by the text (Davis, 2013; Price, 2007). It is a reality that millennial students manage information differently and thus the institutional focus on text is an issue. Millennial students are living demonstrations of the principles of convergence in practice. Students are not recognizing the value and frequently are not even reading class syllabi, expecting course information to be accessible in other forms such as on the web (Fornaciari & Dean, 2014). The impact of this transformed method of communication utilizing multimodal messaging has not yet been

fully understood when applied to the syllabus.

#### **METHODS**

This experimental study's purpose was to examine if an infographic syllabus addendum (as a graphic organizer) would increase the retention of syllabus information. The expectation was that the information presented as an infographic supported a student's ability to organize, and helped promote course information retention into their long-term memories. As the syllabus is a common element in most higher education courses, it was selected as the modality of investigation. To protect the students participating in the study, all received the traditional text-based syllabus. The treatment was an infographic syllabus addendum addressing specifically on the items identified in the literature that students focus upon within a syllabus (Figure 1). Becker and Calhoon (1999); lannarelli, Bardsley and Foote (2010); and McDonald et al. (2010) each indicated that what students' focus upon are exam dates, course schedule, assignments and student responsibilities, grading criteria and course expectations. The treatment was created using CTML principles, along with infographic design features and the syllabus textual requirements. This investigation was primarily concerned with the following research question: What are the effects of an infographic syllabus design on information retention by "at-risk" first-semester freshman students?

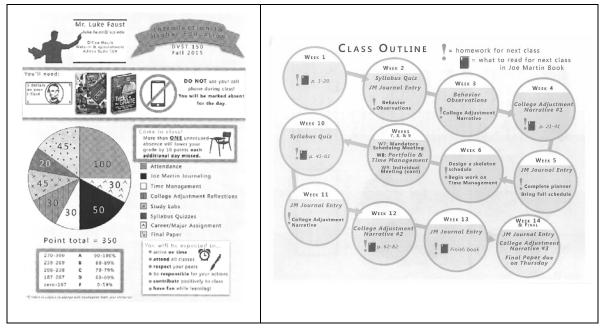


Figure 1: Infographic syllabus treatment (black and white)

A significance level of  $p = \le 0.05$  was used for all statistical analysis. A single intro to higher education course with five sections taught by one instructor over a 15 week timeframe was used for this study. There was a single large section used as the control group and the other four sections comprised the experimental groups (See Table 1). The syllabus, both text-based and infographic addendum, was given in hard copy format to the students on the first day of class. The treatment for this study was an infographic syllabus addendum. The independent variable was the method in which the syllabus information is imparted and was presented via three modalities: (a) text-based, (b) black and white infographic, and (c) color infographic (See Table 2). The dependent variable for this study was the

students' retention of the information within the syllabus. This infographic was distributed to the students in the experimental groups (n=71), along with the text-based syllabus. There were two infographic addendums, both had the exact same information. The only difference between the two infographics was color, one was in black and white, while the other was in color.

Treatment	Day/Time Of Class	# in Sample
Black & white infographic	Monday/9:05	19
Black & white infographic	Monday/10:10	15
Text only (control)	Tuesday/12:30	27
Color infographic	Wednesday/9:05	19
Color infographic	Wednesday/10:10	18

#### TABLE 2: SECTION WHERE SUBJECTS WERE RECRUITED

#### TABLE 2: DESCRIPTION OF THE STIMULI

Group	Treatment
Control	Text-based syllabus only (Text)
Treatment 1	Text-based syllabus and black and white infographic (B&W)
Treatment 2	Text-based syllabus and color infographic (Color)

There were two identical 20 point, paper-based, multiple choice quizzes (posttests) scheduled as part of the course requirements. The same quiz was given during both scheduled test sessions. The order of the test questions was changed for each class to augment academic integrity. The first quiz was given the third week of class (originally scheduled for week two but a death in the faculty member's family delayed testing by one week); and, the second was given in week ten. This timeframe was chosen to examine long-term memory, both within a shorter timeframe and over an extended period of time. The overall goal of this study is two-fold. The first goal is to examine the impact of syllabus design on the germane cognitive load or the construction of new knowledge. In other words, were students learning what they were supposed to learning about course information? The secondary goal was the retention of internal schemas into long-term memory; or, in other words, how long will students retain pertinent course information?

# **RESULTS/FINDINGS**

There were three hypotheses examined via this study.

- H1. Graphics increases a student's course information retention.
- H2. The design of a syllabus improves retention of course information.
- H3. The use of color supports course information retention.

The results in Table 3 indicate a statistical significance supporting the hypothesis that graphics influence students' retention of information. The significant Welch's F-test (p=.028), indicates that students demonstrate greater long-term retention of the material when it is presented in a multimodal manner incorporating graphics to support the text. For the intermediate time-frame (3 weeks), the hypothesis was not supported as the Analysis of Variance (ANOVA) was not statistically significant (Table 4). The significance was found only for quiz two (ten weeks) indicating that graphics do have a long-term impact on the students' retention of information but not for retention over a shorter time-period.

Graphics present	Ν	Mean	Std. Dev.	Std. Error	Welch's F	Significance
No	25	15.920	1.9774	.3955	F=5.183	
Yes	59	16.983	1.9073	.2483	df=1,82	p = .028*
Total	84	16.667	1.9778	.2158		

# TABLE 3: GRAPHICS AND INFORMATION RECALL AT 10 WEEKS

*Note:* Levene's = .032 (df=1,82) p = .858

Graphics present	N	Mean	Std. Dev.	Std. Error	F-value	Significance
No	26	14.423	1.9631	.3850	F=2.902	
Yes	60	15.283	2.2254	.2873	df=1,82	p = .092
Total	86	15.023	2.1746	.2345		

# TABLE 4: GRAPHICS AND INFORMATION RECALL AT 3 WEEKS

*Note:* Levene's = .112 (df=1,84) p = .739

Mayer (2002) indicates that learning is supported and enhanced when information is garnered from more than one source. When text is combined with graphics, long-term memory is enhanced by the utilization of two information processing systems to obtain and retain the data (Mayer 2014). This study found statistically significant results suggesting that a multimodal design has an impact on students' retention of the course material over the long term (Table 5). This indicates an infographic syllabus addendum may influence the longer-term retention of information. The Welch's F-test (p=.044), indicates that there is a significance when graphics are utilized, and there is greater long-term retention of the material when it is presented in a multimodal manner.

Syllabus Type	Ν	Mean	Std. Dev.	Std. Error	Welch's F	Significance
Text	25	15.920	1.9774	.3955		
Black & White	32	16.875	2.3521	.4158	F=3.323	p=.044*
Color	27	17.111	1.2195	.2347	df=2,50	
Total	84	16.667	1.9778	.2158		

#### TABLE 5: SYLLABUS TYPE AND RECALL AT 10 WEEKS

Note: Levene's = 5.990 (df=2,81) p = .004

The results in Table 6, however, indicate that at the shorter timeframe (3 weeks), there was no significant difference (p=.176) in the recall of information between the control and experimental groups. Both treatment groups had higher mean scores than the text-based control. While the mean score for both groups that received the infographic addendum was higher than the students that received the text-only syllabus, the relatively large standard deviations indicate a great degree of variability within groups. While not statistically significant, it is interesting to note that the students who received the black and white addendum had the highest mean score, leading to questions concerning the impact of color on recall.

Syllabus Type	Ν	Mean	Std. Dev.	Std. Error	F-value	Significance
Text	26	14.423	1.9631	.3850		
Black & White	29	15.517	2.2932	.4258	F=1.76	p=.176
Color	31	15.065	2.1746	.3906	df=(2,83)	
Total	86	15.023	2.1746	.2345		

# TABLE 6: SYLLABUS TYPE AND RECALL AT 3 WEEKS

*Note:* Levene's = .689 (df=2,83) p = .505

The impact that color has on information retention has not been studied to any significant degree since the early 1990's. Lamberski and Dwyer (1983), and Hoadley (1990) found that the use of color could impact an individual's ability to extract and retain information, as well as enhance the recall and retention of information. Lamberski (1980) found that color (specifically red) significantly enhances the recall of images or image/text combinations. It was assumed that the color infographic would have the best information recall based on prior research. As can be seen in Tables 7 and 8, the F-value reported indicated no significant difference in information recall related to color. This analysis was of only the infographics, black and white vs. color, excluding text-based syllabus data. The Levene's significance (p=.001) for the quiz two analyis, indicating a lack of homogeneity of the variances. A Welch's F-test was run to address this inequality. The premise that color affects information retention was not supported.

Color	Ν	Mean	Std. Dev.	Std. Error	F-value	Significance
No	29	15.517	2.2932	.4258	F=.601	
Yes	31	15.065	2.1746	.3906	df=1,58	p = .436
Total	60	15.283	2.2254	.2873		

TABLE 7: COLOR AND INFORMATION RECALL ON QUIZ 1 (EXCLUDING TEXT-BASED SYLLABUS) -- ANOVA

*Note:* Levene's = 1.133 (df=1,58) p = .292

### TABLE 8: COLOR AND INFORMATION RECALL ON QUIZ 2 (EXCLUDING TEXT-BASED SYLLABUS) -- ANOVA

Color	N	Mean	Std. Dev.	Std. Error	Welch's F	Significance
No	29	15.517	2.2932	.4258	F=.245	
Yes	31	15.065	2.1746	.3906	df=1,48	p = .623
Total	60	15.283	2.2254	.2873		

*Note:* Levene's = 13.106 (df=1,57) p = .001

Of note, both treatment groups, those who received the infographic addendum whether black and white or color, scored higher on both quizzes than the text-only control group (See Table 9). All groups had an improved mean score on the second quiz. The control group's mean grade on quiz two was a 79.6 % or a high C grade, whereas the treatment groups were 83.8% or higher or a B grade. Granted, students had completed a large portion of the course by week ten; however, the results of this study suggest that the manner which information is presented does impact the retention of the material. It is noted that the mean grade at week ten for the sections that had the color infographic had the largest percent improved, suggesting color may have an impact that is difficult to statistically quantify.

#### TABLE 9: QUIZ AVERAGE SCORES

Treatment	Day/Time		Mean		Mean	% grade
	Of Class	Quiz 1	Grade	Quiz 2	Grade	Improved
B&W	Monday/9:05	15.35	76.8%	16.89	84.4%	7.6%
B&W	Monday/10:10	15.75	78.8%	17.20	86.0%	7.2%
Text	Tuesday/12:30	14.42	72.1%	15.92	79.6%	7.5%

Color	Wednesday/9:05	14.94	74.7%	17.64	88.2%	13.5%
Color	Wednesday/10:10	15.21	76.0%	16.75	83.8%	7.8%

*Note* – A total of 20 points possible for each quiz.

The sample size for this study was limited to the single class. When the size effect is examined, the observed power level was modest for both quiz one and quiz two; although, there was an improvement noted for quiz two. However, the partial eta squared for both quizzes was low (See Table 10). This suggests that other factors beyond the design of the syllabus also influence course information retention. The literature suggests factors such as student age, GPA, class rank, SAT scores, time of the semester and if students are first generation or non-traditional may play an additional role (Becker, & Calhoon, 1999; Wasley, 2008). This is an area for future study.

# TABLE 10: SIZE EFFECT/POWER LEVEL

	df	Mean Squared	F	Sig	Partial Eta Squared	Observed Power
Quiz one	2	18.690	2.809	0.066	0.063	0.538
Quiz two	2	24.586	3.892	0.024	0.087	0.688

# CONCLUSIONS

This study found that both the use of graphics and an infographic syllabus addendum did impact student retention of the material over the long term. The infographic syllabus addendum was designed specifically to address information identified in prior research as important to students. The infographic specifically highlighted each of these points in a multimodal format.

This study focused on three different variables (graphics, syllabus design and color) and their impact on information retention. Research has demonstrated that illustrations supported by text, help individuals grasp information (Davis, 2013; Price, 2007). Mayer (2002) indicates that when information is presented using a multimodal framework, students learn more deeply, storing more information in long-term memory than when the information is from a single source, specifically verbally. Additionally, the use of pictures and text provides learners with two different cognitive processing systems to enhance the retention of data (Mayer, 2014). This study supports the findings of Mayer (2014) and the CTML's indication that the combined use of graphics and text promote increased retention of material and learning. The results of this study suggest that the functional design of the syllabus and the use of graphics impact the retention of the material. However, this study found that the use of multimodal information was not statistically significant in information retention at an intermediate time-frame. Although not statistically significant, the application of color represents an area for future research with a larger sample size.

#### LIMITATIONS

While this study produced some statistically significant results, there were also limitations to be considered. The study did not utilize all the principles of cognitive theory of multimedia learning; however, it did match the overarching framework. The presentations were not what is traditionally considered multimedia i.e. animation or computer-based. However, the materials were multimodal in presentation, with a combination of pictures and text and used in conjunction with verbal descriptions. The study did meet the criteria outlined by Mayer (2014) within his multimedia principle – use of words and pictures rather than words alone. The use of a hyperactive multimedia syllabus addendum represents an area for future research.

This study utilized a representative sample of the total population of at-risk students from a regional branch campus of a large, mid-eastern US research institution (49%); however, this population is not reflective of the general population of traditional college freshman. The use of a specific population of students classified as academically at-risk does limit the generalizability of the results to a larger group. Conversely, if students who are academically underprepared can increase retention of information using a multimodal syllabus format, all students may be equally supported. A follow-up study is in process, which expands the sample population beyond "at-risk" students and includes a general population of traditional students across a variety of disciplines.

The posttest format of the study had limitations in that students were aware of the scheduled time for the posttests. Students had the opportunity to refresh their memories of the syllabus information prior to the scheduled quizzes. To limit the confounding variable of refreshed knowledge, "pop" quizzes or unexpected testing of knowledge would be more reflective of long-term retention of information. This would provide a more rigorous examination of information retention both at the three-week and tenweek timeframe.

This study examined the effects of an infographic syllabus on a specific population, namely novice students who have been designated as "at-risk". Further research should be conducted examining the effects on both traditional college students, as well as non-traditional students e.g., older than 25. Additionally, factors including class rank, GPA, age etc. should be examined in conjunction with the infographic to determine their impact on information retention. Further research is underway into the effectiveness of infographic syllabus addendum with students in a variety of course topics and disciplines over the course of a semester. Additionally, the effectiveness of infographics on the long-term retention of a variety of course content as reflected in overall course success will be examined.

The creation of an infographic does take time and effort by the faculty. In the context of this study, the faculty would have to plan an innovative design for the syllabus addendum via the use of an infographic, however not necessarily for the syllabus itself. Higher education is mired in tradition; however, in the case of the syllabus, that tradition's effectiveness has not been studied. This research has begun an examination of the form of syllabus design and its impacts on the functional use of the syllabus, its effectiveness, and the impact of multimodal methods of communication on the retention of information.

The role of higher education is to promote the education of individuals. Examination and revision of methods used to provide information on the path to learning is key to supporting students. This study reveals that professors/scholars should consider changing the way they view sharing critical information on a syllabus. This research indicates that use of an infographic increases the retention of the syllabus

information. The study participants were academically underprepared; and, they had increased retention. This suggests potential for all students. A syllabus, as highlighted through the literature, serves multiple roles for the student, instructor, program, and educational institution. The provision of an infographic addendum, specifically focused on what is viewed as important to students, while preserving the traditional text-based syllabus to serve the additional needs of the instructor, program and institution is a win-win for both students and higher education.

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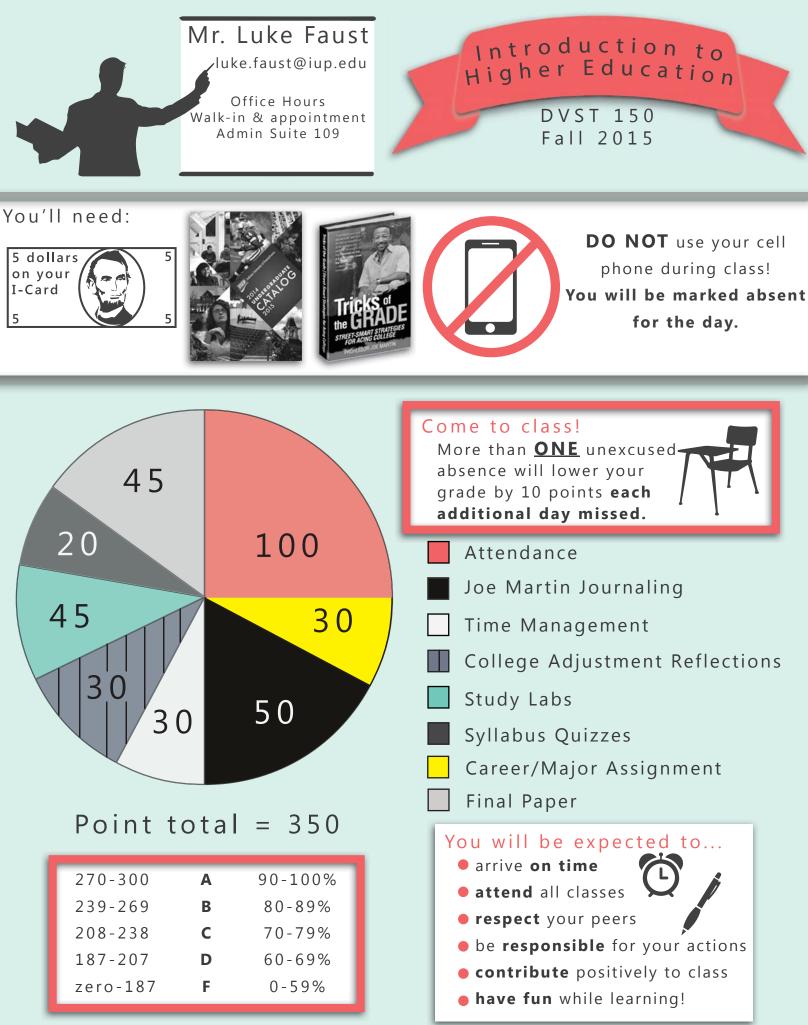
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\*Syllabus is subject to change with notification from your instructor

