

# **Teaching Finance across Majors in Today's Classroom: A Template Model for Teaching Finance to Finance and Non-Finance Students Simultaneously**

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## **ABSTRACT**

*Effective teaching invites students into the discipline and helps them to observe and make the inter-connection between the discipline's content and their lives. The writer teaches an introductory finance course to students from a multiplicity of majors and being confronted with a disengaging subgroup of students in his very first class he did what any vigilant professor would do and that is, to seize upon the unpredictably teachable moment and take a stand. The stand he took was to apply a myriad of teaching techniques in order to capture the higher than usual intensity level of a seemingly disinterested undergrad juniors, whose presence in the classroom was not conducive to a positive learning environment. This paper identifies an effective alternative approach to the teaching of introductory finance to a given class comprising of undergraduates drawn from finance and non-finance disciplines. This study shows that by using a template model for the teaching of an introductory finance to finance and non-finance majors resulted in improvements in learning as measured by grade attainment on standardized final exams. This study also showed that course difficulty as perceived by class attendees negatively affects higher ratings attributable to the professor. The t-test statistics comparing the hypothesized difference between the pooled mean scores of finance students between the years 2006/07 and 2010/11 were found to be significantly different. A test for significance in the hypothesized difference between higher levels of course difficulty and lower ratings of the given faculty was also found to be significant.*

## **INTRODUCTION**

The following is a recent article written in the *Chronicle of Higher Education of Higher Education*, September 17, 2012 by Lynda Lambert, an English faculty member from a community college in Maryland:

Students have become quite sure what we faculty members should be doing for them, which is essentially giving them the answers to the questions that we pose. ‘What do you want me to say?’ they ask. ‘Where's the template? Where's the model?’ Examples and explanations are no longer good enough. The majority of students today expect assignments with finite parameters, clear grading paths, and a checklist of things they can tick off to get an A. They just want me to give it to them in black and white. Up front and right away. They don't want to be creative; they just want an A. This should not be a surprise, of course. The types of assignments they became accustomed to in elementary and secondary schools were not subjectively graded but were rooted in a behaviorist system that, intentionally, does not challenge students to think or be creative. Instead it tells them what result they should have and then offers them the map to it. Unfortunately, following a map may teach them how to navigate, but it does not teach them how to drive. Few students seem to be able to find their way through their courses anymore without that map. And, interestingly, they hold the instructor responsible for their lack of learning if she does not provide GPS coordinates.— homogenized, packaged curricula that offer the kinds of maps for which these students are hoping.

Under the assumption that the above article bore some relevance to an attempt to provide a mapping of the GPS coordinates to our student clientele, it is becoming more and more necessary for faculty members to convince students that they must participate in their own education and that they have quite a lot to contribute in the teaching and learning processes. The above quote also shares light on the so-called millennial generation, who continue to populate our contemporary classrooms whether it be the onsite, online, or hybrid modes of delivering the curriculum. Our classrooms are increasingly being challenged with the intake of this new wired-up generation, a reality which inevitably ushers in a deep sea change as this new group, schooled in a novel mindset of the newly discovered hand held communicative devices, would continue to navigate through today's school systems.

Millennial students choose a social networking configuration thereby possessing tendencies to inquire from face-book friends or a “helicoptering” mom and dad prior to deciding upon an issue and who feel quite at ease in placing intimate details on websites as they seek to compete for attention in cyberspace. In this new evolving context, a level of digital literacy necessitates the required adaptation because, as the Pew Research Center study shows, technologies could easily distract especially with today's Millennials, whose mindset may be of a shorter attention span than previous generations (Percell et al, 2012) and thus, technology could be a distraction and even an impediment to academic progress. The result being, that curricula evolves and new teaching methodologies go through modification and adaptation in order to reach this new generation, who spend as much time being stimulated by digital media as they perhaps do in the school setting and as such faculty members would want to be guided by the following pedagogical construct:

1. Learning needs to be relevant so that students of the changing demographic understand the practical applications of the information they receive

2. The course content should be specific, concise, and relatively fast-paced given that distractions are all around them despite their self-proclaimed belief that they do possess special multitasking abilities.
3. Because so much information is constantly available to them, millennials do not feel they need to immediately learn everything thrown at them. Instead, they want to be taught how and where to find what they need, if and when they need it in the future.
4. Millennials are victims of the ongoing electronic revolution as they are subsumed and consumed by wired-up gadgets. These devices together with accompanying software that are the creations of this current senior generation who had deliberately created the Student Instructional Reports (SIRs) of which was redirected as a perceived instrument for “getting even” for the low grades (Calkins & Micari, 2010). The early inception of the SIRs was aimed at guiding students to choose those professors who are more responsive to students’ learning needs rather than to blame instructor for their own mediocre performance.
5. Millennials harbor a risk-averse cognition at being over-school and over-worked. They are the most programmed of past generations and of whom, are being pushed to succeed like no other prior contemporaries.

Most students who must take an introductory course in finance would admit that such a course is one of the most challenging one that they would choose to take or are required to take as part of their baccalaureate program. As a matter of fact, some students assert that they shouldn’t be made to take finance especially at the point in the finance course when the going gets more challenging at about the middle of the course’s rollout and when the going seems to be getting much tougher. Some students vocalize their resentment at doing finance especially in situations where finance is not their field or major. In order to soften such a rigidity this writer would do what any responsible faculty would do and that is, to use a considerable amount of class time for an initial marketing of the course showing the relevance to today’s reality and that an adult student learn best where they could see the connectedness of the concepts as relating to their personal experiences. It follows that there are indeed lots of real life examples around and along the lines of El-Erian’s so-called new normal world (El-Erian, 2010) and linking the known with the unknown reduces the underlying boredom. It goes without saying therefore, that effective teaching invites students into the given discipline and helps them to observe and make connections between the discipline’s content and their previous formal and incidental learning experiences.

## **THE PROBLEM**

Most tenured faculty who teach at their given institution of higher learning may have had offers at other institutions and would have ideally suited reasons for choosing one institution over another. Reasons such as location, love for teaching, the college’s learning community, the remuneration package, the growth potential, the supervisory (“they don’t bother you here,” relatively speaking), and perhaps a few other ascribed rationalizing attributes that many faculty are identified with as reasons given for joining and remaining a faculty member at that college. This writer’s initial teaching experience with his first class at a relatively mid-size proprietary college “lecturing” at the Westchester campus location which is also a relatively small business campus which attracts students of varying aptitudes, intellectual persuasions and other social and

academic attributes was a ‘baptism of fire’ experience. This writer was allocated the principles of finance course to teach to what seemed to be a not-so-motivated group of learners who were mainly non-finance majors. Taking at least one finance course is required by most colleges these days in that a business major is slotted to do at least one 3 to 4 credit course in finance as part of their undergraduate curriculum. This is the course that usually brings on the proverbial baptism of fire experience to many new faculties and it is this course that would re-usher this writer back into college teaching after a ten-year hiatus away from college-level teaching and having used up the decade at a supervisory level of employment in corporate America.

On this writer’s return to teaching he found out that the classrooms were vastly different from the ones he used to teach in some ten years earlier. What makes the delivery different whether the emphasis was to be “sage on the stage” or to “guide on the side,” was the physical structure of the classroom. The physical arrange was such that the whiteboard was divided in two by a middle post and so was the functionality in the classroom in a symbiotically identical structural and operational disposition. This suggested that from a delivery perspective, a divisive physical arrangement meant that class control would be no ordinary feat to achieve and even more worst, to maintain. When one comes out of corporate America at the supervisory level and actively runs businesses in the past (as this writer did), that individual would see the world through an entrepreneurial spectacle. Thus, by entering academia one would view the workings of an educational institution, where a prevailing consumer orientation is that the student is always right and that the student-customer knows best. After all the customer chose to be here and therefore, there should not be a dichotomy between the goals of the faculty and that of the student-customer.

As a matter of fact, by re-entering the classroom with the well-established adage that the students are here to learn and the professor is here to teach and therefore, there should be no incongruent compatibilities in this logical configuration. But this writer was wrong in that quite a sizable minority of these students were there and the question of the *raison d’être* of why they were there, was obviously not on their minds. So in the main, there was a clash of expectations as this faculty member kept on teaching and the majority of students kept on talking away while appearing occasionally to jot down some of the notes that were being written on the whiteboard. After all, the professor was there to teach and the students were there to learn! So what is the big deal, this writer introspectively reasoned.

This writer was informed by a classroom observer that at no time the former was in control of the class of which the dean at that time requested an immediate action plan for delivering the curriculum in a more controlled classroom environment going forward. And yes, this writer was even shown the employer’s faculty handbook by the bosses at that time and they even delineated the clause about classroom management. But what else could he have done other than asking the unruly crowd to keep quiet, this writer reasoned within himself as he attempted to rationalize the “GenY” approach to college level learning. The teaching of the freshman’s class experience by this writer became the “ah ha” teachable moment for him as he decided to take the “bull by the horn” so to speak and protect the section of students who were there to maximize their learning as much as possible. As a matter of fact, being confronted with those seemingly disengaging subgroup of students in the classroom is what motivated this writer to take a stand, as many vigilant teachers would do, and be quick to recognize and seize upon any unpredictable teachable moment. Therefore, it was not the faculty handbook nor the threat by the administration as such to take a stand, but it was that silent minority in the classroom whose parents may have sent them there as being their first child in the family to go to college and perhaps these parents had built

up an insurmountable amount of hope in their kids to have a worthwhile and rewarding college education. For it was during the 1990s and early 2000s that the emphasis was on no child left behind and everyone deserves a chance to go to college were the guiding ethos at that time. Interestingly enough some colleges have resorted to a questioning of this sort of “open door” policy for those typical two- and four-year colleges in recent times (Powers, 2008).

During their first few years of college teaching, a faculty often assumes a survival mode and without a mentoring plan the conflicting demands on one's time in a sometimes hostile classroom environment could persuade the faculty to surrender oneself as a failure in the classroom (Ramakrishnan & Saravananaraj, 2006). Being observant and eager to engage in observing and willing to converse about teaching the faculty can develop tools for continuous improvement. The parallel pathways for teaching is to pair one's research power into the classroom setting such as asking questions, defining problems and the empirical testing of hypotheses and the evaluation one own modes for delivering the curriculum (Ebert-May, Batzli, and Lim, 2003). In other words, research-based teaching is about conjectures aimed at conducting research into curriculum delivery in order to refute or validate hunches about underlying testable propositions.

This writer adopted the behavior modification, which meant that he had to take off his lecturing cap and put on his “in your face hat,” which worked. It worked because he began by immediately taking charge of the classroom and arrived at the settled opinion that here is the challenge for him— how to take these perhaps typical students for that college and move them up the ladder in order to appreciate why they are in college and that they are indeed budding college-type clientele. This writer knew that he could not achieve this feat alone, but perhaps if he could do his own teeny-weeny portion and the remaining college community would do theirs, they all could collectively take these students up to the level where they should be at the end of a typical freshman's year.

This writer also soon realized that he was not interacting with the average student who was drawn from the top 10 % of the class in their high school nor was he dealing with a motivated group for whom education possesses humongous levels of intrinsic value. And so, herein began the crystallization of his philosophy of teaching which is— how to take this average or below average academically inclined and unmotivated-for-learning group and move them up to the first quartile of academic success? For, in the conventional scenario, there is no challenge for him in taking those who were already in the top quartile and maintaining them in that level. If this is the case, then what does he have to prove – taking the top 25% and keeping them at the level? No! The challenge for any aspiring excellent teacher would be moving the students up the quartiles of excellence. So, was this writer successful in this effort? The result of the analysis in Tables that would follow throughout this study tend to suggest an answer in the affirmative for the most part in that most of the students who have passed through the courses taught by this writer gave this impression which supplemented the related data design and collection. The reliability of the evidence was re-affirmed by the SIRs administered by the college's administration which showed a movement from an arithmetic mean of 3.36 to a 3.80 (see t-Test: Paired Two Sample for Means in Table 5).

This writer, who had taught previously at the college level and the teaching profession being his destined vocational calling with a relatively brief detour into banking, upon returning to his apparent destined profession was competently trained to teach adult students as was evident by post graduate credentials he holds in andragogical and pedagogical sciences. So delivering the curriculum to a mixed group of students should not be alien to him recalling the

popularly-known dictum of John Dewey (cited in Vihtelic, 1996, p.122) which is, to “start where the students are” and link up the known with the unknown in a seamless transition into knowledge discovery. Given the this writer’s educational and industrial underpinnings, disseminating a pre-arranged curriculum does not mean the absence of a deep-rooted speculation for nuances in the form of serendipitous teachable moments. It means that this writer sought to apply the appropriate andragogical and pedagogical tools that would empower students to construct knowledge within their own spaces and timelines.

Today, this writer continues to teach the principles of finance course at a private four-year college in New York City, a college whose aim is to educate students majoring in range of disciplines across the college’s curriculum from accounting to financial services to fashion marketing to general management among other majors. The college system with campuses across New York and New Jersey offers 22 baccalaureate degrees and out of these only two, the Bachelor of Science degree in criminal justice the Bachelors of Business Administration in interior design management do not call for the successfully completion of the introductory principles of finance course. Therefore, some 80% of the bachelor degree students must enroll and pass the principles of finance course in order to graduate. Given the broad based nature of delivery across the college’s curricula and the wide span of level of preparedness of the average student, it goes without saying that such a student would come to the class with varying expectations and interests and with diverse learning backgrounds and a myriad of learning styles.

The principles of finance course is one which exposes all business students to a broader foundational survey of the finance discipline. However, those majoring in finance, accounting, or international business are required also to enroll in and pass an advanced financial management course as a necessary condition before graduation in their respective majors. Therefore, to a good majority of students the principles of finance course may be the first and only course in finance that they are required to take as part of their undergraduate business curriculum. The course is also geared to recruit non-finance majors to be attracted to the finance field and who, hopefully, would take additional finance courses if so motivated. In a survey conducted by this writer at the beginning of class over a twelve-month period for academic year 2007-08, the following responses were uncovered pertaining to the given principles of finance course:

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Table 1 about here  
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Student coming into a new course at the start of a semester and especially at the sophomore level and above do enter the class with a preconceived notion about what to expect in the new class. Through networking at onsite locations and social media matriculated students discuss different courses pertaining to level of difficulty, which class to take, and with whom as the professor and so on. Table 1 categorized the responses from groups of students who took the principles of finance course facilitated by this writer. From the table it is quite clear that, students perceive the course as very challenging and that this is one course, which would not be in great demand if offered as an elective. Therefore, it is to no one’s surprise that principles of finance is a required course for twenty of the twenty-two baccalaureate degrees in business at the this writer’s college.

Obviously, how one teaches a course is a function of the class itself. Some pedagogical techniques are general enough to be used for any class but then, each class is different and the

teaching technique would be adjusted according to the classroom's subculture. To help in the process of knowledge transference from pre-requisite classes students are informed of certain curriculum contents that must be transferred to upper level classes such as the principles of finance course, which must be taken in the sophomore or junior year. It is therefore necessary for a culture of higher standards to be embedded in the curriculum given that there are perhaps enough earlier courses to prepare for what is expected at relatively more challenging courses. A major goal of the principles of finance course is to guide the students toward developing an intuitive, conceptual, and quantitative understanding of principles and theories of finance with application. To accomplish a beyond the numbers' reasoning students are encouraged to think beyond the arithmetic of numbers. As a matter of fact, this writer subscribes to the view that merely crunching numbers is useless, unless of course these numbers could connect with the conceptual and intuitive understanding necessary for practical application in the real world.

The challenges of teaching principles of finance as described above mean that students do come in with different academic backgrounds and different commitment levels to their educational success. It is quite common to have the distribution curve on a proctored onsite exam to have bi-or tri-modal distribution. Tri-modal would likely occur if one teaches to the middle as some professors are prone to do, while the bi-modal would arise because of the dichotomy of majors in finance and accounting vis-à-vis other majors in the a given finance class. The problem with teaching to the middle is that the instructor is likely to lose the two extremes which would hurt the retention effort even more. An effective teaching model would, in such as a case, be a three-pronged approach such as teaching to the middle but add some extras for the polar ends of the delivery spectrum. In support of the pedagogical dichotomy of simultaneously teaching finance to finance and non-finance across curricula Krishnan, Bathala, Bhattacharya and Ritchey (1999) survey hundreds of students and find that the cognitive behavior among accounting and finance majors showed a more positive approach to finance courses vis-à-vis non-finance business majors. This finding were confirmed in Balachandran and Skully (2004) who went a bit further to suggest that two distinct principles of Finance courses should be offered– one with a more quantitative and theoretical approach and the other with greater focus on application of finance concepts and principles.

In this study, the writer would identify the pedagogical complications that arise in teaching courses in the discipline of finance to students pursuing a wide variety of majors and to describe an effort to discover a more suited methodology for teaching principles of finance across curricula. This study would also show that a baseline analysis of the classes stretched over a ten-year period revealed that a template model of teaching to students across a varied disciplines works in an introductory finance course setting, where attendees are drawn from a multiplicity of educational disciplines. The next section would review the related literature which would include the linguistic or terminological component followed by some anecdotal observations on the dispensing the syllabus across the curriculum. The paper would end with a description of the template model of teaching finance followed by a conclusion and discussion of the findings.

## **REVIEW OF THE LITERATURE**

The view that crunching numbers such as those found in momentum and other algorithmic portfolio management is not quite useful unless these numbers could connect with the conceptual

and intuitive understanding necessary for practical application in the real world was studied by Hess (2005). Kurt Hess further argued that the teaching of the quantitative aspects in accounting and finance pose inherent challenges to accounting and finance students to which I would add, more so to other students who sometimes would remind me that they did not come to college to learn finance, an insinuation that was substantiated in Table I of this study. One way to mitigate the quantitative aspect is to prepare several templates in order to guide the efforts of student and to ease the tension brought on by graphs and algebraic expressions more commonly known as the “math phobia.”

The debate over the curriculum matters in the field of finance has been a contentious issue and continues up to today. In a 1987 survey of members of the Financial Management Association, Berry and Farragher showed that 76 percent of the members sampled were of the view that financial management should be a major goal for an across-the-board financial curriculum with capital budgeting and time value of money being the areas drawing the most attention. The same study found that Personal Financial Planning (PFP) should be facilitated in a finance undergraduate curriculum a point re-affirmed in a later study (Blanton, 2011). In another study James Gentry and Marne Helgesen explained that there are several different learning styles among students and found that finance students seldom learn the same way as their professors did and differences also exist with respect to learning styles among students (Gentry & Helgesen, 1998). These authors further stated that female business students process information in significantly different ways than male business students. They also found that non-business majors process information differently than do business majors and suggested that finance professors interested in sociological diversity must explore the discourse of the discipline in order to make their classrooms more equitably suited to the plural nature of the class’s composition of the given student population.

In this writer’s search for the perhaps one-best way to plan and deliver the study of finance across curricula he discovered that students who laid claim to be successful accounting majors at that point had problems conceptualizing the intuitive connection between the right hand and left hand side of a typical balance sheet. The feeling was that the constructs of the earlier courses were coded only for that class such that the effective knowledge transference could not make the necessary leap. Students are sincere in their denial of not having the pre-requisite knowledge say, from financial and or managerial accounting and therefore, one should be circumspect in concluding that untruths are being told by these students. In an effort to test students participation in class and whether learning took place Fewings and Wonder investigated the benefits of graded daily classroom participation in finance courses and held that the benefits of a strategy requiring graded daily classroom participation in finance courses, with assigned problems presented each class-day, found that the relationship between performance and the participation grades were indeed positive and significant (Fewings & Wonder, 2009).

Academic research testing the effects in the use of PowerPoint presentations on student learning have produced inconclusive results, For example, Bartsch and Cobern (2003) found that PowerPoint presentations do improve student academic performance compared with other

delivery aids whereas, Rankin and Hoas (2001) found that the use of PowerPoint presentations does not affect student academic performance, student attitudes toward the course, nor the evaluation of the instructor. However, despite these inconclusive results PowerPoint presentations continue to be sold in the packages that accompany the textbooks. When it comes to spreadsheet applications for finance Hallows (2008) reported that even though student showed an appreciation for using Excel for the calculations they prefer a conceptually led and focused lab instructions. In other words, the jargon of finance must be fully explained and understood for the subsequent effective application of these concepts. A downside to widespread usage of PowerPoint is that students may not see the usefulness in attending class as they could capture the essence of the class in the slides made available to them of which are usually posted in Blackboard.

This writer was informed by students that since the given class is essentially captured in these slides, then why buy the prescribed main textbook? After all, they would claim, that the professors teach from the slides and therefore they, nor the professors, use the textbook directly. Assuming the students' perceptions are reliable enough then this would tell us that slides have more disadvantages than we may have thought originally. Brooks and Oliver (2004) showed us how to connect managerial accounting with technology using a template-like spreadsheet design while King and Jennings (2004) showed that, while spreadsheet applications are used in upper level finance course the use of these produce limited significant positive results. However, the authors demonstrated further, that when the same applications were used in the introductory level finance course the result is met with very little or no positive teaching/learning advantage over other conventional methods. This writer's own experience over the years found that students would prefer using Excel spreadsheet to aid their calculations, but were unable to link the quant results for the intuitive conditionality in financial decision making which leads to further a linguistic inquiry as shown in the next section.

### ***The Language of Finance across Curricula***

Diane Larsen-Freeman and Marti Anderson (2011) wrote about communicative language teaching (CLT) being the pedagogical methodology for linguistic connection between action and thoughts with perceived purposes and transparent learning outcomes. Thus, teachers in a communicative classrooms will find themselves talking less and listening more thereby becoming active facilitators of their students' learning (Larsen-Freeman & Anderson, 2011). Students in an introductory finance course are not the only ones who are baffled by the finance language. A parallel could be drawn between the teaching of introductory finance and the teaching of English as a foreign language (TOEFL) as Anne Turner, director emeritus of the Santa Cruz Library System, CA did some eight years ago when she wrote that "the gurus of finance speak a language of their own and follow conventions that make no sense to the typical outsider" (Turner, 2004). Turner was not alone in this respect for, in 2008 Kristin Bristol also put forward a persuasive argument for both finance and accounting by arguing that the language of

finance especially in the academic and analytical fraternity exploit and communicate using a systematic set of arbitrary symbols (Bristol, 2008).

Many of the students who are new to the study of finance would find that these symbols are novel and opaque and seemingly quite foreign to them. And even when the words used as jargon in the business are preconceived as common in everyday use the contextualization of these words in the discipline is tainted with abstract and “foreign” meanings. For example, the cost of capital to the new student would mean interest charges, whereas in finance it is the weighted benchmarking for profitability. In a sense, the language is not so friendly and as a result the instructor may want to use common linguistic anchoring ideas thereby contextualizing the narrative necessary to perform persuasive arguments and to read and understand the jargons of the business in contemporary financial literature.

### ***Anecdotal Observations on Teaching Finance across Curriculum***

Given this writer’s dozen plus years of teaching at the referenced private college and his observation that the pre-college pedagogical model as currently constructed and delivered has failed some students and that the given college is a business school in a business setting a hybrid of pedagogical and andragogical curriculum design must be a considered approach. With this in mind, this writer has found the following perspectives to be quite relevant for fulfilling the requirements of the course’s syllabus targeting finance and non-finance majors simultaneously:

1. The key is getting the students to understand the material is not to memorize in the rote learning modality as such, but simulations, models, and examples would work best.
2. Students can do much more than they think they can and by raising the bar the students will go even higher. The National Center for Education Statistics (1992) found that eighth-graders from schools that had a heavy emphasis on academic success were no more likely drop out than those schools that place less emphasis on academics.
3. Spreadsheets do not work well in showing connective concepts to students in the absence of some dialectical logic.
4. Multimedia does work therefore, the use of whiteboards, computer projectors, TVs, audio tapes; whatever device can help effectively communicate in order to bridge the divide by promoting multiple modalities and interactions as the faculty engages the students with the material.
5. Courses in the fields of finance and mathematics could be boring and dry without the learner visualizing the application of the principles, theories, and concepts to a real world setting. This writer noticed that his students showed a more intense interest in investigating the finances of Apple, Google, and Facebook when working in groups or as individuals. The reason is quite clear– they have accounts with these companies and can more readily relate to them.

These real world examples in #5 above is the reason for this writer asking students to look up financial events and company information in the Wall Street Journal, Barron's, Yahoo Finance, and so on all of which in addition the content knowledge, would give legs to the college's information literacy impetus.

There is some empirical evidence for the five perspectives enumerated above. Gentry, J.A. and Dyer, M.A. (2000) using Angelo's Principles (Angelo, 1993) showed how faculty can improve teaching skills and provided useful insights for finance professors to become more effective teachers through enhanced learning techniques. It was further argued that finance students learn primarily through abstract conceptualization and reflective observation, while accounting students prefer abstract conceptualization and active experimentation. Students from other business majors vary in their preferences of learning styles with no specific leanings to a particular learning style. According to Hess (2005), the teaching of the quantitative contents in accounting and finance pose inherent challenges and even if students possess an understanding of the use of quantitative skills, they may find it hard to grasp the meaning of the concepts or theories. That researcher advocated for embedding the teaching of financial concepts into spreadsheet modeling exercises. He believed that courses that put modeling at the forefront of the course delivery mode would enable students to acquire the applicable concepts in finance and accounting almost automatically along the way because the practical, "hands-on" method enhances the cognitive domain as well as students' retention. Holden & Womack (2000) discuss the benefits and motivations for spreadsheet modeling in finance which positively impact as follows:

1. Conquering equation phobia;
2. Bridging from concepts to problem solving;
3. Outfitting the student with real-world tools provide a rich canvas by which to build intricate and realistic finance models;
4. As a natural platform for quantitative models.

These authors cautioned further that the use of spreadsheet templates in instruction can be problematic if they are seen as "Black Boxes" to students and if students do not learn to build the equations or graphs themselves. Therefore, students are seeking to apply the relevant financial terminologies, a sort of "a hands on" if you will, and thereby subscribing to the third level in Bloom's taxonomy of learning— the application level.

General management and marketing majors have no clear cut leaning toward one learning style over the other, but learning styles discovery are within the faculty's range of delivery methods.

John Centra from Syracuse University makes the point that professors in courses in which students rate the course as being "just right" in terms of course difficulty or workload received the higher ratings on their SIRs, whereas teachers of courses rated either "too difficult" or "too elementary" received lower ratings. It follows that quant courses are generally rated lower than those in other fields given that the incoming students may lack the quantitative preconditioned

skills (Centra, 2006). Taking a constructive approach to curriculum delivery suggests that students would want to make sense of the new information they are encountering as they would seek to associate it with their own anchoring ideas (Crawford, 2001). Students learn and remember new information best when the level of knowledge is anchored in prior ideas. Using such an approach suggests that learning is a process, which is controlled by students as they interact with their colleagues and instructor in order to assimilate the new information. In recent times, however, the college to which this writer is attached has been re-emphasizing assessment of student learning outcomes which is justified not only as a Middle States accreditation requirement, but as a form of student-consumer protection, particularly in the light of the fact that there are other institutions that lack an acceptable level of academic credence (Lori, 2010). Taking this assessment dilemma further that author argued that assessment provides the epistemological means for reflection and reaction which could result in the so-called closing of the educational loop.

In order to test the effectiveness of the teaching model this writer compared the results of students' achievement on the given comprehensive final exams between the academic years 2006/07 period when the template model was not used compared to an essentially identical final exam for the period 2010/11 when the template model was used. Table 4 and Chart 1 represent the breakdown of the averages on the final exams for the pre- and post-template model and the accompanying parameters of the tests for significance.

## **LEARNING ACCOMMODATION USING THE TEMPLATE MODEL**

Given that some of the students who come to the principles of finance class would have a varying degree of learning experiences and cognitive levels for knowledge transference, this writer sought to set about the task of designing templates such as the one is reproduced in Appendices I and II. The templates are programmatic-led learning exercises intended to supplement learning experiences in novel ways. Given that attendees in the course may not be majors in accounting or finance the templates provided are the means to an end because in the end, and especially for the students not majoring in accounting or finance, the templates are only learning props aimed at generating proficiency for building financial statements and other analytical financial tools from ground zero. The template model, while it would help all learners, would be specifically more suitable and relevant to students outside the accounting and finance fields. This point is quite obvious, given that time and time again non-finance and non-accounting majors would show resistance to the study of finance citing the reason that they chose not the major in finance or accounting in the first place, so why the study of finance now? It is for this reason and the idea that some students show overt resistance at being asked to do a course in finance result in this writer spending a considerable amount

of time in the first two weeks of the semester at marketing the usefulness of the course to their baccalaureate education. All templates, like the ones in the appendices, are constructed for other types of accounting and financial analysis such as a loan amortization scheduling, evaluation financial performance of a business, financial forecasting and budgeting, among others.

In order to ensure that the conceptual or qualitative side of the delivery mode is interconnected to the quant side of the course each week students were assigned a discussion question, which they were required to present to the class in their own words, but using the jargon of the business – a second language if you will, as discussed in the preceding section. This pedagogical practice would seek to ensure that the cognitive internalization of the language of finance would be realized so that, once the information is assimilated and the new finance language is cognitively internalized the students are required to tell others, which is proof that the new information is internalized and communication is indeed taking place using the newly acquired ‘language of the profession.’ Thus, by talking, discussing, probing, and searching for teachable moments teaching, learning and appropriate pedagogical intervention became more timely and effective as can be seen when one examines the scores attained in the principles of finance course over the comparative quarters with and the supporting t-distribution test presented in Table 4 and Chart 1 presented in the conclusion and discussion of this study.

This study makes no claim as to the conclusion drawn regarding the presence of a cause-and-effect relationship only from the fact that the use of the template model is correlated with students improved performances by given students on a final examination. Determining whether there is an actual cause-and-effect relationship among the variables introduced would require further investigation, even when the relationship between the defined variables are statistically significant. This writer, similar to other faculty members, holds the view that it is important to simulate exercises aimed at improving the pedagogical process, especially with the implementation of new curricula and novel instructional approaches. However, it may not be quite convincing with changes to the delivery methods and related assessment and using the derived data that test the efficacy of these novel approaches to a level of satisfaction stipulated by fellow researchers. Often faculty use grading as a metric to determine effectiveness of teaching with success or failure on a commonly administered set of questions and hierarchical in the nature of Bloom’s taxonomy of learning. Research-based teaching may quickly discover why the student could not apply the knowledge in defined ways which leads to ontological learning environment and to question one’s epistemology and teaching methodology.

This study identifies an alternative approach to effective teaching of undergraduate finance by using a template model of teaching introductory finance to non-finance majors across the curricula and that students ratings of professors who teach a quant-type course such as principles of finance have a discipline bias. The study therefore takes a more

analytical approach by simply describing and analyzing the data essentially drawing a conclusion about what the analysis did or did not show with regard to the particular underlying phenomenon. The assembly and analysis of data seek to test the differences between two means of two sets of data collected pertaining to two groups of students comprising of finance and non-finance majors and the before and after periods of data concerning the implementation of a template model for the teaching the principles of finance course to finance and non-finance majors.

This writer found it appropriate to employ the Analysis of the Variance technique which allows one to test for significance differences between comparable means of a sample or a population. Another important feature of the ANOVA test is that, it examines the ratio of variability between two or more identifiable groups and variability within the groups themselves. That the variability being tested between groups are greater than the variability within the same group thereby concluding that the template model did or did not improve on the learning outcomes as measured by test scores obtained on a standardize final examination. Testing for any significant difference between two or more means suggests a hypothesized testing in order to conclude whether the claim of the means differentials is true or not. Such a testing of a hypothesis suggests that a given test such as the t-test could be employed thereby connecting a p-value for a rejection of the null hypothesis such that if  $P < \alpha$ , the null hypothesis should be rejected. The alpha number “ $\alpha$ ” is the threshold value for measuring p-value against and informs the researcher how extreme the results must be in order to reject the null hypothesis at a given confidence level, which is five percent or less.

The two-sample t-test is used in this study is to decide whether two groups levels of a factor have the same central tendency. One-way analysis of variance generalizes this to levels where the arithmetic mean of the post template period is significantly different in that the mean of the pre- and post-period were significantly unequal. The result of this two-tailed test at a 5% probability ( $p < 0.05$ ) with reference to a two-tailed test of the hypothesis suggest that the null hypothesis ought to be rejected. In short, the test of the null hypothesis is as follows:

$$H_0: \mu_1 = \mu_2$$

$$H_a: \mu_1 \neq \mu_2$$

Thus, for the given level of significance we would reject the null hypothesis if the test statistic exceeds the upper level or falls below the lower threshold level That is:

$$\text{Reject } H_0: \text{ if } t > t_{n_1 + n_2 - 2}$$

or if  $t < -t_{n_1 + n_2 - 2}$

The above equations, if true, suggest that the means of the alternate hypothesis ( $H_a$ ) are not equal and there is a bias against the faculty who teaches quant courses and that the implementation of the novel instructional method is effective.

## **DISCUSSION AND CONCLUSION**

Millennials are more dependent on wired-up devices to help them through their college experience, but the truth is that development of the human potential needs a certain psyche and therefore technology by itself, if not channeled appropriately, could be counterproductive. This suggests that a level of digital literacy would call for a special level of adaptation because as the Pew Research Center study shows technologies could easily distract especially with today's Millennials, whose mind may of a short attention span (Percell et al, 2012) and thus, technology could be a hindrance to academic progress. When faculty members see students struggling with a concept it is incumbent on that faculty to utilize the required moment in order to talk through the issue one more time using another and perhaps different examples. Students often do read their professor's body language and professors must do likewise of the student in order to capture teachable moments in the delivery process. Faculty members must be aware of some of the dos and don'ts in working with Generation Y, which in general would include the Millennials. Professors must be prepared to confront the fact that the quantitative components of finance do pose an inherent challenge as have been well documented and demonstrated in the literature review for this study.

Embedding the teaching of financial concepts into spreadsheet modeling exercises, as were identified and demonstrated in this article, has put modeling as a front and center pedagogical technique for connecting concepts and theories with practice. In effect, the integration of concepts into financial modeling using the template approach enhances an appreciation for the material being studied together with a deeper understanding of the concepts that could complement rigor and quality in the curriculum together with students' higher retention levels. Effective teaching invites students into the discipline and helps them to visualize and make connections between the discipline's content and their lives. Being confronted with a disengaging subgroup of students in this writer's very first class was what motivated him to take a stand and applied a myriad of teaching techniques and approaches in order to capture the higher level intensity in coming to grips with teaching finance to non-finance majors across the college's curricula.

The paper identifies an alternative approach to effective teaching of undergraduate finance by using a template model of teaching introductory finance to non-finance majors across the curricula. The hypothesized relationships between the pre and post effects suggest that the rejection of the null hypotheses for all the paired samples derived indicate that the differences between paired means are significant. Thus, employing the Analysis of the Variance (ANOVA) tests was merely to determine whether the differences between the respective paired population parameters are due by chance or whether the differences were indeed significant enough to be considered meaningful. And since this study used paired samples of comparison at the given times a t statistic was calculated for each of the ANOVA tests.

### ***Teaching Effectiveness: Finance Vs Non-finance Majors***

In order to prove that the template model was effective a test was carried out comparing the perceptions of students spanning a four-year interval using data the college's administered in the Students Instructional Report II® on teaching effectiveness of this writer. In addition, a t-test was also carried out to identify whether or not there is a significant difference between students perception of finance and non-finance courses as claimed by Hess (2005). This test was intended to show that there is a bias in students' perception between courses requiring differing numerical and conceptual skills for successful completion. The Paired Two-sample means test sought to test for significance in the difference of the opinions of students in finance compared non-finance courses taught by the same instructor was conducted during the academic year 2003/04. This test was carried out to identify whether or not students perceptions of the instructor and the course would differ where the same instructor teaches a different course with "level of difficulty" as the intervening variable between the instructor and the student as was reported by John Centra of Syracuse University (Centra, 2006).

During the measurement period this writer taught two non-finance classes simultaneously with four other finance courses. The test here was to probe whether or not there was a bias against courses that are perceived by students as being more difficult vis-à-vis those courses that are deemed to be less difficult. The principles of finance course was populated with the same students taking a non-finance course that this researcher was teaching during the academic year 2003/04. The essentially identical target group of students simultaneously vented the opinion that the non-finance course as being just about right or being of lesser difficulty when compared to the perceptively more challenging principles of finance course. The answer is in the affirmative that there is a significant difference between an instructor teaching finance and non-finance courses and can be seen from Table 2. In this case the "Level of Difficulty" was removed and treated as an outlier especially given that this measure may be the intervening variable. Here again the test for the null hypothesis  $H_0$  is:

$$H_0: \quad \mu_{\text{Fin}} \geq \mu_{\text{Non-fin}}; \quad \mu_{\text{Fin}} - \mu_{\text{Non-fin}} \geq 0$$

$$H_1: \quad \mu_{\text{Fin}} < \mu_{\text{Non-fin}}; \quad \mu_{\text{Fin}} - \mu_{\text{Non-fin}} < 0$$

The null hypothesis was rejected at the 5% level of significance indicating that students view of the course and instructor as being integrated and as such teaching finance courses posed and inherent bias as students evaluate identical instructors teaching finance and non-finance courses simultaneously, differently suggesting a bias against a more challenging such as principles of finance.

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Insert Table 2 about here.

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Table 2 shows the pooled sample means for the non-finance and finance courses taught by this writer for the given period with essentially the same students in both classes. The t-test statistic compared the hypothesized difference in perception of students between the pooled mean scores using the college's administered Student Instructional Report II® for the identical academic year and semester. The implied understanding here is, that the intervening variable would be "level of difficulty" associated with the course by the students. This is evident by the fact that only 16 % of the students in this writer's non-finance classes view those courses as being "very or somewhat difficult" whereas, approximately 92.5% hold a similar view for the finance courses. The finding here suggests that the perceived difficulty for a given course possesses an inherent bias in students' perception against the given instructor.

### ***Teaching Effectiveness: Tracking Progress with Formative and Summative Evaluation***

Given the earlier shocking experience by this writer as described earlier in the introduction there was a need to ensure that the pedagogy was on targeted trajectory. In order to track progress as the semester continues this writer often conducts formative and summative evaluation using cohorts of the same class. The goal here for the formative mid-term evaluation was to monitor student learning through ongoing feedback which would then be used to remedy teaching and learning deficiencies. Here opinions of attendees are sought in an effort to identify strength and weaknesses and isolate areas of the curriculum that require remedial work. Once the areas of weaknesses in the teaching and learning are recognized corrective actions are adopted and in the end the view of the students are again solicited using a similar instruments at the end of the course (see Table 3). The test here is to ascertain whether there is any significant change in the perception of the student in terms of the content being taught between the mid-term period and the final week of the course. Here the test again is:

$$H_0: \quad \mu_F \geq \mu_M; \quad \mu_F - \mu_M \geq 0$$

$$H_1: \quad \mu_M < \mu_F; \quad \mu_M - \mu_F < 0$$

Where  $\mu_F$  = the final week of the term

And  $\mu_M$  = the middle of the term

The result of this test is shown in Table 3 and reveals that the perception of students about the finance course in three finance classes in the same academic year are significantly different. This does show that there is a more positive development as the course is introduced and progressed

toward the end with a formative assessment at the mid-point in the delivery when the original perception of the course gradually change resulting in a positive change as the course comes to closure.

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Insert Table 3 about here

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The t-test statistic compared the hypothesized difference in perception of students between the pooled mean scores in the formative and summative assessments in the principles of finance course for the academic year 2010/11 and found the difference to be significant (see Table 3). A test for significance in the hypothesized difference between summative and formative evaluations in teaching of undergraduate finance across the curriculum was measured and the difference was found to be significant. These tests suggest that learning is taking place and that the template model is an effective teaching method suited for students enrolled in the introductory principles of finance course at the given college. As can be seen from Table 3 the one-way analysis of variance generalizes this to levels where the arithmetic mean of the mid-term and final week survey is significantly different suggesting that the null hypothesis of no significant difference is not supported. The result of this two-tailed test at a 5% probability ( $p < 0.05$ ) with reference to a two-tailed test of the hypothesized means gives the indication that the null hypothesis must be rejected.

### ***Testing the Template Model Years 2006/07 and 2010/11 Compared***

In order to ascertain whether or not the template model worked data were obtained by compiling the scores on a final examination earned by students on an essentially standardized final examination over the academic year 2006/07 compared with that of the academic year 2010/11. The academic year 2006/07 is referred to as the pre-template period whereas academic year 2010/11 is the template implementation academic period sometimes referred to as post-template period. The formulation of test is re-stated as follows:

$$H_0: \quad \mu_{2006/07} \geq \mu_{2010/11}; \quad \mu_{2003} - \mu_{2007} \geq 0$$

$$H_1: \quad \mu_{2006/07} < \mu_{2010/11}; \quad \mu_{2003} - \mu_{2007} < 0$$

The results of students' achievement on the given comprehensive final exams between the academic years 2006/07 period, when the template model was not used, compared to an essentially identical final exam for the period 2010/11, when the model was used. Table 4 and Chart 1 represent the breakdown of the averages on the final exams for the pre- and post-template model periods and the accompanying parameters of the tests for significance.

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Insert Table 4 about here

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As can be seen from Table 4 the one-way analysis of variance generalizes testing the arithmetic mean of student scores in their final examination of the pre-template usage compared with the template usage period is significantly different suggesting that the null hypothesis of no significant difference is not supported. The result of this two-tailed test at a 5% probability ( $p < 0.05$ ) with reference to a two-tailed test of the hypothesized means gives the indication that the null hypothesis must be rejected.

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Insert Chart 1 about here

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Chart 1 depicts the findings in Table 4 showing the upward lateral movement of student performance in a standardized final comprehensive examination at the end of the given academic years. The upper lateral fitted line represents the average score in the post-implementation of the template model when compared to the pre-implementation period depicted by the lower fitted line.

The findings above were reaffirmed by the Student Instructional Report II (SIR II®) administered by the colleges administration. The views of students on the course and the instructor for the two periods were compared which showed that the null hypothesis could not be supported at a 5% probability ( $p < 0.05$ ) level.

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Insert Table 5 about here

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The above table shows a significant difference in the students' perception using the college administered SIR IIs® instruments when compared to the pre and post-implementation periods of the template model. As can be seen the null hypothesis of no significant difference between the two period and two differing situations could not be supported leaving one to conclude at ( $p < 0.05$ ) that the template model was effective. This writer's college administration administered Student Instructional Reports (SIR II®s) for the academic years 2006/07 and 2010/11 and the results were compared for any significant difference. The question that the data sought to answer is whether or not there was a significant difference between the students' perception of the course and the instructor comparing these two different periods of syllabi delivery. The paired population means were compared using the following tests where the means on the SIRs' scores were found to be significantly different at the 5% level.

In conclusion, this writer subscribes to the truism that active learning is more effective than passive learning. Thus, what one hears, one may forgets; what one sees, one remembers; what one does, one understands and therefore, the emphasis is to bridge the gap between concepts and theories with problem solving simulations. Curricula evolve, and new teaching methodologies need to be developed in order to reach the evolving new generation, who spend as

much time being stimulated by digital media as they perhaps do in the school setting and as such, faculty members would want to be guided by novel pedagogical constructs yet to be discovered given that the technology the current generation has created does bring negatives to the pedagogy. College-level learning is meaningful and useful assuming that the learner understands and appreciates what is being learnt, which means that rote learning may be necessary but not sufficient to qualify as meaningful or useful as the new paradigm in teaching and learning evolves against an unfolding new digitized pedagogical landscape.

In today's baccalaureate business degree programs at most post-secondary institutions demand that students must take an introductory course in finance and most would admit that such a course is one of the most challenging one that they would chose to take or, are required to take as part of their undergraduate studies. Some students assert that they should not be required to take finance since they are non-finance business majors. Therefore, in order to soften the rigidity in the finance curriculum this writer did what any responsible faculty would do and that is, to use a considerable amount of class time for an initial marketing of the course showing the relevance to today's 'new normal' reality and that adult students learn best where they could see the connectedness of the concepts as relating to their personal experiences. It goes without saying therefore, that effective teaching invites students into the given discipline and helps them to observe and make connections between the discipline's content and their previous formal and incidental learning experiences. It is with this anxiety about learning finance where some students seem to harbor a phobia that they may not perform up to an acceptable standard as they struggle with a deep ambivalence when it comes to quant courses in their baccalaureate programs. This is a deeper problem given that it could be morphed into an all-round intellectual deficiency – a sort of finance or quant phobia as I indicated throughout this study.

Perhaps as a starting point the faculty needs to work with the students from day one on what seems to be pre-dispossessed phobia about taking a finance class and to disabuse them over the somewhat irrational fear for quant courses generally. Searching for the magic bullet or the one best way to deliver the finance curriculum may perhaps be futile. But finding the right methodology and tools and technique could produce positive results in terms of the quality and quantity of a minimum end result measured by some level of financial literacy at least for the non-finance major. Future research endeavors should be directed at digging deeper into the proposition that it should be a preferred pedagogy that students, especially non-finance major, be required to take a course in personal finance which would better fit into those students' life experiences and cognitive constructs.

Future researchers in the field of finance pedagogy may want to focus on the quant phobia especially as finance faculty attempt to attract students into their discipline. Leveraging the students' anchoring ideas gives the freedom to explore their own learning path which supplement the teaching-learning constructs in ways that are unique unto themselves and could redound into making them lifelong learners not only in the study of finance but in their own disciplines as well. Deregulation of the financial services industry would mean that the skill set required for the study of finance would not dissipate and the complexity of the subject would remain at the same level or even increase. The search for a more effective and efficient pedagogy relating to the study of finance across the curricula must be open-ended and does require a good deal of further theorizing and analyzing as faculty, administration, and policy makers grapple with rigor and quality in higher education. All of these issues would shape the finance pedagogy against the developing reality that technology has both an upside and a downside as educators seek to realize the learning objectives of any given student-centered curriculum.

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**Table 1**  
**Incoming students Responses to certain Questions at the**  
**First Day of Class - Principles of Finance**  
**(N= 374)**

Responses: Question 1:	Require lots of Math	Did not know what to expect	
<i>What have you heard about this course before today (the first day of class)</i>	82% (3.97%)	18%	
Question 2:	Very challenging	Challenging as other courses	<b>Don't know</b>
<i>How challenging would you expect the course to be</i>	91% (2.96%)	7%	<b>2%</b>
Question 3	No	Yes	<b>Don't know</b>
<i>Would you sign up for this course if it was an elective?</i>	77% (4.35%)	8%	<b>15%</b>

Note: Standard error of the estimates are shown in brackets at 95% confidence Level.

**Table 2**

**Panel A: Student Instructional Reports (SIR®s) Non-Finance and Finance Courses Compared 2003/04**

	Course Type Measurement (Period)	Non –Finance 2003/04 (n=28)	Finance 2003/04 (n=49)
1	Course Organization & Planning	4.17	2.79
2	Communication	4.15	3.9
3	Faculty/Student Interaction	4.15	3.55
3	Assignments, Exams Grading	4.20	3.52
5	Course Outcomes	3.62	2.45
6	Student Effort and Involvement	3.67	3.72
7	Course Difficulty (Very/Somewhat)	16%	92.5%

Source: *Student Instructional Reports II®*, (2003). Maharaj, BUS220 and FIN301 White Plains, NY (college name withheld for proprietary reasons)

**Panel B: Tests of the Paired Two Sample for Pooled Means**

<b>t-Test: Paired Two Sample Means: Non-Finance &amp; Finance Courses</b>		
<b>Pooled Sample Means from SIRsII®</b>		
<i>Parameters of the Analysis</i>	<i>Finance Course</i>	<i>Non-finance Course</i>
Mean	3.3550	4.0433
Variance	0.3640	0.0496
Observations	6.0000	6.0000
Pearson Correlation	0.5581	
Hypothesized Mean Difference	0.0000	
Df	5.0000	
t Stat	3.2841	
P(T<=t) one-tail	0.0109	
t Critical one-tail	2.0150	
P(T<=t) two-tail	0.0219	
t Critical two-tail	2.5706	

**Table 3**

**Panel A:**

The Questionnaire  
BERKELEY COLLEGE  
FORMATIVE & SUMMATIVE COURSE EVALUATION  
Westchester Day Spring 2010/11

Dr. Maharaj

FIN301 *Principles of Finance* SECTION (day & time) \_\_\_\_\_

The purpose of this questionnaire is to measure teaching-learning effectiveness and to make changes if necessary.

Respond to the following questions using the Rating Scale:

1 = *Strongly Disagree*    2 = *Disagree*    3 = *Neutral*    4 = *Agree*    5 = *Strongly Agree*

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[Enter 1-5]

(n=67) (n=51)

Form.Summ

↓	↓	<u>A. LEARNING/ACADEMIC VALUE</u>
3.1	3.9	1. The instructor is adequately explaining the objectives and requirements for successful completion of the course.
3.9	4.2	2. You have found the class to be intellectually stimulating and challenging
4.1	3.7	3. You are learning something, which you think is valuable to you
3.3	4.0	4. You interest in the subject matter is increasing as a consequence of taking this class
<u>3.2</u>	<u>4.0</u>	5. You are learning and understanding the subject matter of this class
<b>3.5</b>	<b>4.0</b>	

B. INSTRUCTOR'S ENTHUSIASM/PRESENTATION

2.9	4.1	6. Instructor seems enthusiastic about teaching the course
<u>2.7</u>	<u>3.8</u>	7. Instructor's method of presentation is holding my interest during class
<b>2.8</b>	<b>4.0</b>	

C. EXAMINATION/GRADING

3.6	3.6	8. Feedback on examination and other graded material are valuable to me
3.2	3.9	9. The methods for evaluating students work seem fair and appropriate
<u>3.9</u>	<u>3.8</u>	10. Examination and other graded material seem testing the content of the course
<b>3.6</b>	<b>3.8</b>	

**Table 3 Panel A** (continued)

**D** INTERACTION/RAPPORT

- 2.8 4.1 11. Students are encouraged to participate in class discussions  
2.7 3.8 12. Students are given meaningful answers to questions asked  
**2.8 4.0**

FORMATIVE & SUMMATIVE COURSE EVALUATION

- 2.7 3.8 13. Students are invited to share their ideas and knowledge on the course material  
2.7 3.7 14. Students are encouraged to give their own ideas on how to make learning more effective  
3.1 3.9 15. The instructor is displaying a genuine interest in students as individual learners  
2.9 3.9 16. The instructor communicates effectively with the class.  
**2.9 3.9**

**E.** WORKLOAD/COURSE DIFFICULTY

- 3.7 3.7 17. This content of this course relative to other courses was difficult to comprehend  
2.7 2.7 18. This course has encouraged me to learn more about other areas related to the course  
**3.2 3.2**

**F.** ADDITIONAL COMMENTS (optional) Formative

19. *“Teacher doesn’t explain as I would like.”*  
*“Golden state warrior is that team”*.....to which I countered:

*“Berkeley Knights is that Team”*

ADDITIONAL COMMENTS (optional) Summative

19. The course got much better in the end  
I had fun (two responses)  
Thank you professor

**Table 3 Panel B: Analysis**

Findings and Analysis for Appendix 1. FORMATIVE & SUMMATIVE COURSE EVALUATION

The mean differences between formative & summative evaluations were significant at 95% level ( $p = 0.00425$ ). The analysis does also show that the one-tail test of Summative significantly exceed the formative at the 95% level (0.00213).

**t-Test: Two-Sample Assuming Equal Variance**

	<b>Summative Score</b>	<b>Formative Score</b>
-		
<u>Mean</u>	<u>3.876470588</u>	<u>3.205882353</u>
<u>Variance</u>	<u>0.026911765</u>	<u>0.223088235</u>
<u>Observations</u>	<u>68</u>	<u>51</u>
<u>Pooled Variance</u>	<u>0.125</u>	
<u>Hypothesized Mean Difference</u>	<u>0</u>	
<u>Df</u>	<u>69</u>	
<u>t Stat</u>	<u>5.529812251</u>	
<u>P(T&lt;=t) one-tail</u>	<u>2.12565E-06</u>	
<u>t Critical one-tail</u>	<u>1.693888407</u>	
<u>P(T&lt;=t) two-tail</u>	<u>4.25129E-06</u>	
<u>t Critical two-tail</u>	<u>2.036931619</u>	-

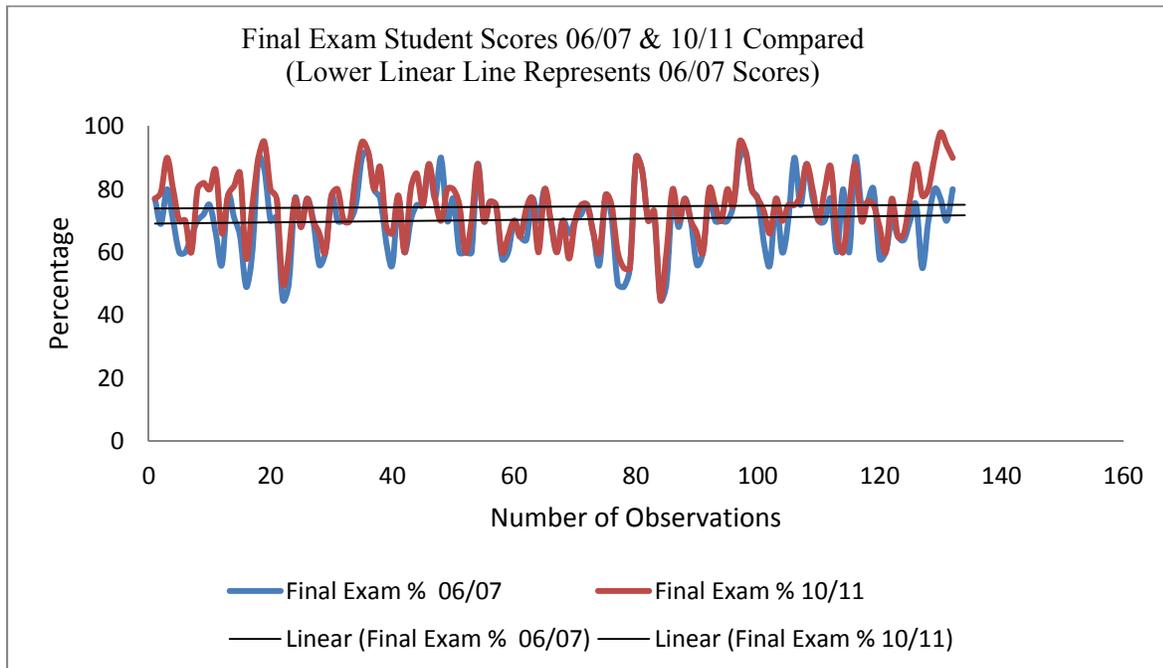
**Table 4**  
**T-Test Showing the Results of the Pre- and Post-template Model**  
**Implementation**

**t-Test: Two-Sample Assuming Equal Variances**

	<i>Final Exam 2010/11</i>	<i>Final Exam 2006/07</i>
Mean %	74.78986	70.35878
Variance	104.91172	110.64721
Observations	138	131
Pooled Variance	107.70428	
Hypothesized Mean Difference	0.00000	
Df	267	
t Stat	3.50019	
P(T<=t) one-tail	0.00027	
t Critical one-tail	1.65058	
P(T<=t) two-tail	0.00054	
t Critical two-tail	1.96889	

**Chart 1**

**Final Examination Scores (in Percentages) for the Principles of Finance**  
**Pre- and Post-template Implementation Compared**



**Table 5**  
**T-Test of the Student Instructional Report II Overall Scores**  
**Pre-and Post-template Implementation**

**t-Test: Two-Sample Assuming Pooled Equal Variances**

	<i>SIR II 2010/11 Overall Averages</i>	<i>SIR II 2006/07 Overall Averages</i>
Mean	3.8013	3.3638
Variance	0.1087	0.1976
Observations	8.0000	8.0000
Pooled Variance	0.1531	
Hypothesized Mean Difference	0.0000	
df	14.0000	
t Stat	2.2359	
P(T<=t) one-tail	0.0211	
t Critical one-tail	1.7613	
P(T<=t) two-tail	0.0422	
t Critical two-tail	2.1448	

**APPENDIX 1**  
**Publicly Traded Company's Financial Performance Template**

The following table is a template developed by the author is quite useful for ALL students intending to evaluate the financial performance of a company a required capability for all business majors.

Ratios	Group	Period 1	Period 2	Trending*	Norm	Industrial*
$CURRENT = \frac{\text{Current assets}}{\text{Current liabilities}}$	LQ					
$QUICK = \frac{\text{Current assets} - \text{Inventories}}{\text{Current liabilities}}$	LQ					
ACCOUNT RECEIVABLE TURNOVER = Sales/Accounts Receivable = 365/DSO	LQ					
$DSO = \frac{\text{Accounts receivable}}{\text{Sales} / 365}$	AM					
$INVENTORY T/OVER = \frac{\text{Sales}}{\text{Inventories}}$	AM					
$SALE /TA = \frac{\text{Sales}}{\text{Total assets}}$	AM					
$NET PROFIT MARGIN = \frac{\text{Net income}}{\text{Sales}}$	PR					
$ROTA = \frac{\text{Net income}}{\text{Total assets}}$	PR					
$ROE = \frac{\text{Net income}}{\text{Common equity}}$	PR					
ROE: Integrating NPM and ROA above we have: = NI/S x S/TA x TA/CE, which is the extended or modified Du Pont analysis	PR					
Times Interest Earned	DM					
$\text{Debt Ratio} = \frac{\text{Total debt}}{\text{Total assets}}$	DM					
Market: Book Ratio	MKT					

\*Use letters such as: A = Better performance; B = Getting worst; C = Neither or average

**Describe Your Findings:**

**Liquidity:** (LQ).....

**Efficiency:** (AM) .....

**Debt Management:** (DM): .....

**Profitability (PR):** .....

**Market Value Measures (MKT):** .....

**APPENDIX 2**  
**Free Cash Flow Template**

FREE CASH FLOW CALCULATIONS AND DESCRIPTION		Ref.: Ch. 3 in Main textbook			
<u>FCF = A - B - C</u>					
		Period 2 (later)	Period 1 (earlier)	Change= Per. (2 -1)	Sub-total
<b>A:</b>					
Earnings Before Interest & Taxes					
Less Taxes: EBIT(1-t) =					
Add Depreciation					
Less Gross Plant & Equipment:					
Net Plant & Equipment					
Add Depreciation					
Change in Gross Plant & Equipment					\$_____
<b>B. Less:</b>					
Change in Net Oper. Working Cap.:					
Change in Cash					
Change in Acc Rec					
Change in Inventory					
Change in other Current Assets					
Total Change in Current Assets					\$_____
<b>C. Less:</b>					
Change in Non-int. Bearing CL					
Change in Acc payable					
Change in Accruals					
Change in other Non-int. bearing CL					
Total Change in Non-Int bearing CL					
Change in Net Oper. Working Capital					\$_____
<b>Free Cash Flow =</b>					
A - B - C	A	Less	B	Less	C
Free Cash Flow =					
A - B - C	\$_____		\$_____		\$_____
<b><u>FCF =</u></b>					<b><u>\$_____</u></b>

Write a short description of the FCF calculations above and include a prognosis for the company going forward:.....  
.....