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Learning styles and the performance of internships in accounting

Abstract

Purpose: The goal of this study was to unveil the impacts of learning styles in the performance of students who have taken mandatory and non-mandatory accounting internships.

Method: The learning styles of 247 students were measured using Kolb's Learning Style Inventory, while the students self-assessed their performance.

Results: With the use of chi-square and mean score statistics, the results indicate that the performance does not differ between the types of internship and that the students' learning style does not affect their internship performance.

Contributions: These results are contrary to expectations and indicate that students who fit into any learning style can successfully use the curricular component of supervised internship. Unlike other disciplines in which learning styles and their relationship to performance have been investigated, the internship has its own characteristics, which seem to exert no influence on how the students learn, considering Kolb's learning styles. It was verified that internships are a valuable employment method for accounting students.

Keywords: internships; learning styles; experiential learning theory; accounting

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1. Introduction

Once the college years are over, many recently graduated students do not feel ready to take the professional qualification exams, which they were prepared for during four or five years in college. The study by Siegel and Sorensen (1994) highlights that recently graduated persons do not rise up to professional expectations, among other reasons due to the lack of practical experience. Experience is seen as so important that Jones and Abraham (2007) found that students consider that previous work experience is the single most important factor influencing their potential hiring or not. Students might feel as if the fact that they are or have been temporarily employed and can add this experience to their curriculum is more important than the actual knowledge gained during the internship program itself.

To worsen the scenario, there is a visual disparity between accounting education and accounting practice. In a study, Grumet (2001) recalls that, while the academic accounting community is successful at teaching the theoretical side of the profession, since then, it has been moving away from the actual life of real word accounting. Kavanagh and Drennan (2008) found that both employers and students agree that universities are not properly developing non-technical and professional skills. Therefore, the objective of Higher Education Institutions (HEIs) is to shape citizens who possess not only technical mastery but also a critical perspective and autonomous learning skills, these characteristics being required to adapt to new professional requirements as they pop up. Santos, Sobral, Correa, Antonovz, and Santos (2011) believe that HEIs that care for their future professionals should offer education that is capable of responding to this demand. This is easier said than done. Some HEIs have desperately relied on internships in order to reduce this gap, many of them without consulting the literature and thinking through how things should be.

It is in this sense that internships, in the form of experiential learning, come to bridge the gap between theory and practice. Brazilian (Torres, Silva & Falk, 2011) and international authors (Bakar, Harun, Yusof & Tahir, 2011), for example, point out countless benefits for all the agents involved in the internship, which are academics, companies and the academy. These benefits include, for example, integration between theory and practice, confirmation or not of the professional choice, lower costs for the companies and the integration between the academy and the market. Internships have been proven to make students more marketable too (Pasewark, Stawser & Wilerson, 1989). Those benefits make internships appealing to study, including the gathering of feedback on how to improve the experience. There are also other advantages, as well as disadvantages, which will be brought up later in this paper.

Knowing that internships can actually be beneficial to students, as shortly mentioned in the paragraph above, it is also interesting to see which style of learners could potentially benefit even more from such programs. Hypothetically, if most students learn best by theoretical aspects and are performing more concrete experience tasks, there could be a problem. If the learning styles are known and a panorama of internship programs can be built, it is possible to assess if the results of those programs have benefited most students or not, also giving the opportunity to enhance internship experiences in order to reach out to other types of learners.

Kolb and Kolb (2005b) cite patterns of behavior associated with the four basic learning styles. These patterns occur through transactions with the environment at five different levels: personality, educational specialization, professional career, current job role, and adaptive competencies. From the model, four types of learners emerge, who are: divergers, assimilators, convergers, and accommodators.

Nogueira and Espejo (2015) found that there was a predominance of the assimilating learning style among the investigated students and also that the statistical tests showed no impact of different learning styles on performance in Introductory and Management Accounting subjects. Leite Filho, Batista, Paulo Junior and Siqueira (2008) also conducted a research about learning styles and academic performance; those authors analyzed the students' grades in some disciplines in relation to their learning styles and found no correlation though. Geiger (1992) conducted research on the learning styles of introductory accounting students and found that those students with learning styles similar to their instructors performed better. Stout and Ruble (1991) also researched the topic and found that accounting majors possess different learning styles in relation to undergraduate business students.

Some papers have mapped learning styles in accounting, such as those previously mentioned, but none of them looked at these in relation to internships, which are important components of pedagogical curriculums about which little is known. If, for example, one specific type of learner seems to be getting better results from internships while other types of learners are not, program coordinators have the opportunity to comprehend why this is happening and alter some configurations, so as to enable other types of learners to reach similar results.

Another reason to conduct this research is that according to Alpert, Heaney & Kuhn, (2009) there is little empirical evidence on the details of internships. These authors highlight that questions such as what internships are meant to accomplish, how they could be structured and how the students should be assessed remain unknown. Many papers have focused on capturing the perceptions of the agents involved in the internship process, such as Alpert *et al.* (2009) and Bakar *et al.* (2011) mapping the benefits and deficiencies of such programs for the agents involved.

This task of preparing a good professional is arduous and some HEIs have desperately relied on internships to achieve their goals, often without consulting the literature and acting on impulse. The case of the host institution (Maringá State University – UEM) is appropriate for the sake of this research. The pedagogical project makes it mandatory for all students to take an internship of at least 432 hours. Students can also take an optional internship if they choose so at any time in the course as from the second year. The final assessment does not take into consideration the report of the on-site supervisor and is based solely on the presentation skills of the intern. Currently, accounting internships are being discussed within the department and changes are to be made.

Bakar *et al.* (2011) and Torres *et al.* (2011) cite the countless benefits for all the agents involved in the internships, which are academics, companies and the academy itself. These benefits include, for example, integration between theory and practice, confirmation or not of the professional choice, lower costs for the companies and integration between the academy and the market. Internships have also been proven to make students more marketable (Pasewark *et al.*, 1989).

Knowing that internships can actually be beneficial to students, it is interesting to verify which style of learners could potentially benefit more from such programs. Hypothetically, if most students learn best by theoretical aspects and are performing more concrete experience tasks, there could be a problem of insufficient usage of the learning capacity.

In that sense, the research question is: **What are the impacts of learning styles in the performance of students who have taken mandatory and optional accounting internships?**

The main objective of this research is **to verify the impacts of learning styles in the performance of students who have taken mandatory and optional accounting internships**. By measuring the learning style of trainees, the premise is that the program coordinators at the accounting departments can have a better view of what type of students the internship is working best for and how to implement best practice strategies to improve the program for other types of learners in case disparities are found.

The key part in internships is that they should not be considered a mere compulsory activity to obtain a diploma, but a key player in the development of the skills necessary (teamwork, communication, critical analysis, and problem solving) to successfully engage in the professional market. Such skills, as cited in this paragraph, are normally not presented to students in the classroom. Hence, most degree programs are typically centered on the development of technical knowledge and not on the context this knowledge is applied to (Bayerlein, 2015).

Because of the internships' power over the agents involved and the importance that education has always had in society, this research is justified because it addresses an extremely relevant topic all eyes need to focus on in order to have more qualified professionals graduating from higher education. Aside from this, it is important to enhance the development of skills, which will certainly contribute to the evolution of students and, consequently, of future professionals.

Companies may benefit tremendously from internship programs, as they will receive these future professionals. Firms can benefit while the students are taking internship programs (low cost, vice-free

professionals) and these students leave college and enter the job market with experience. Students benefit through an opportunity to learn and gather experience, as well as to decide whether they are making the right choice of area. HEIs also gain through greater approximation with the market, thus permitting greater alignment with practical problems. If conducted properly, internships can be beneficial to all agents involved. To do so, trying to understand if the learning styles affect the performance of the internship is important for all stakeholders. The main intention of this paper is to unveil the role of the internships in this professional's education if they effectively contribute to the trainees' learning and their subsequent professional training and performance.

The findings indicated that performance does not differ between the types of internship, that the students' learning style does not affect their internship performance and that the learning styles do not differ among different types of internship. These results are contrary to expectations and indicate that students who fit into any learning style can successfully use the curricular component of supervised internship. Unlike other disciplines in which learning styles and their relationship to performance have been investigated, the internship has its own characteristics, which seem to exert no influence on how the students learn, in view of Kolb's learning styles.

2. Literature Review

2.1 The professional accounting profile

In many countries, the accounting profession has been associated with standardization, with a range of associations representing the professionals. In Brazil, when the accounting course was separated from the course in Actuarial Science in the 1940s and regulated shortly after, these accounting professionals were labeled as bookkeepers, regulated workers who mainly registered financial transactions in a double-entry manner. In this scenario, the "good accountant" had the capacity to assess the taxes to be paid and to structure financial statements by the end of long and tense financial periods (Machado & Nova, 2008).

The technological evolution contributed to the evolution of the accountant, as many activities that were the accountant's sole responsibility came to be replaced by information systems. Today, managers possess spreadsheets of accounting data that permit various types of analysis the user can perform alone, causing the accountant to be no longer a mandatory employee because of the user's computer and figure handling skills (Boer, 2000).

The contemporary accountant needs to be able to interact with other cultures (using other languages, aside from having knowledge in international accounting), dominate and impose new techniques and tools as well as management systems, not only registering and analyzing but foreseeing and suggesting, acting more like an information manager than a data unifier (Machado & Nova, 2008).

The accountant of the present works to be a strategic partner of the business, not only supporting decision taking but also suggesting and giving insights into the paths the company is to take. This is something very different from what was seen in the 1980's, when the accounting professional did not even participate in the decision-making process (Siegel & Sorensen, 1999).

In a study published in 2004, Oliveira and Arruda disclosed that the job market looks for accountants with a set of skills ranging from technical mastery, knowledge of other languages, leadership skills, teamwork spirit, urge to be always updated, professional enhancement and even technical accounting knowledge.

Further contributions could be made to this subject but there is a lack of empirical studies about the competencies of the accountant (Marin, Lima & Nova, 2014). Academic papers still have not revealed the exact skills of accountants, as papers have been focusing more on their roles (Cardoso, Souza & Almeida, 2006). Next, the topic of accounting internships is discussed.

2.2 Supervised accounting internship

The supervised internship serves as an important tool in professional development. In the halls of universities, it is heard that the internships bridge the gap between theory and practice. This is also a consensus among many authors, including Nevett (1985), Beard, (1998) and Mihail (2006).

It can be said that the internship is a necessary practice in academic education, a requirement for students' training, thus permitting the practical applications of knowledge gained in the academy (Fundação Brasileira de Contabilidade, 2009).

Studies such as Maelah, Muhammaddun Mohamed, Ramli and Aman (2014) have found that the students benefit from the learning of technical and soft skills required in the market. Practical work experiences come in handy when students consider that their career is the most important dimension (Bakar, *et al.* 2011). Moreover, students feel as if having the experience is a determinant factor in their future careers (Jones & Abraham, 2007).

Internships provide an experience of "learning by doing" in a real business situation. In the practice of the internships, these students are engaged in real life professional situations in which examples are solving problems and interacting with other professionals alike (Alpert, Heaney & Kuhn, 2009). This is very unlikely to happen inside classrooms, where most content is taught in lectures, due the fact that there are many accounts of students complaining that classes are too theoretical and lack professional insights. Goodman (1982) reported that many trainees are offered and eventually accept full-time positions at the firms where they took their internships. Aside from better future professional positioning, students with internship experience perform significantly better than those without internship experience in the semester following the internships (English & Koeppen, 1993).

Among other benefits the internships provide to students, it is valid to highlight the exposure to the technology, which is unprecedented in the classroom environment (Bakar *et al.*, 2011). It is certain that most accounting courses have an accounting information system discipline but it is in the place of work that the hands-on experience happens. Another benefit according to Bakar *et al.* (2011) is the self-confidence developed during the program, as students identify skills, abilities, and talents.

Students are not the only ones who benefit from internships. For businesses, internships represent a valuable hiring tool. When firms hire trainees, they are most likely reducing costs (Maslen, 1996) due to lower wages in comparison to hiring graduated professionals. Companies also have the opportunity to teach students and once the internship is over, they can hire trainees to work full time. In such cases, the internship is a cost-effective way to train future workers. For the business, there is also an opportunity of integration with the educational institution, as the professionals at the firms can get in touch with professors.

Companies may also benefit in other ways. Gibson (2001) found that the presence of a faculty intern might impact the company's networks and other elements of the firm's culture. With the arrival of the faculty intern, employees may have to perform better and think about processes more precisely in order to teach or explain how a certain process works. Such processes provide the firm's staff with a deeper understanding of workplace content (Herron & Morozzo, 2008). On certain occasions, faculty interns bring new energy and ideas to the workplace (Bakar *et al.*, 2011), thus motivating other professionals. So even firms who have not received trainees may benefit from hiring a worker who has internship experience, as professionals who were once interns may have academically outperformed those who never were (Hauck, Allen & Rondinelli, 2000) and this could potentially lead to better work performance as well.

Educational institutions also benefit from internship programs. According to Gibson (2001), faculty members benefit from internships by obtaining guest lecturers (which are from the companies they send trainees to); the connection with local firms enhances student respect and the students who go through internships are more effective after those programs. Herron and Morozzo (2008) highlight that faculty may also benefit from using the firm's database for research and use the company as others means learning may apply to. As an example, there are cases in which companies start to host case studies. Internships may also affect curriculum and teaching, as up-to-date information and real-world practical exam-

ples to share with students are plentiful if the professors engage in the programs. Similarly, Beard (2007) highlights that accounting programs benefit from enhanced placement opportunities for their graduates, enhanced learning, industry support and feedback on their programs. Other studies such as Herron and Morozzo (2008) and Gibson, (2001) confirm those insights. Bakar *et al.* (2011) also highlight that an internship program may strengthen the student's ties to the university when college facilitates the experience.

Besides advantages, there are also drawbacks regarding internships for the many agents involved in the programs. Many of the drawbacks that will be presented can be attributed to a lack of careful planning and supervision (Hanson, 1984). For universities, some shortcomings may be the lack of supervision of what is actually happening because activities happen off-campus, beyond the direct control of faculty members (Alm, 1996). For students, internships are time and energy consuming, thus requiring great physical and mental effort. Another disadvantage is that some students do not engage in meaningful work and do not feel as if they are a part of the team (Thiel & Hartley, 1997). For companies, some negative effects of internships are the disruption of the normal work environment and the cultural shock (Anthony, 1981).

Keeping in mind that internships are time and energy consuming and offer employment and skill acquirement potential for students, UEM has mandatory and non-mandatory internships. It is understood that students may do better at the non-mandatory than the mandatory type because the student is doing it out of his or her own free will. Thus, the following hypothesis emerges:

H1: Non-mandatory accounting internship performance is different than mandatory accounting internship performance.

The results from these comparisons can be analyzed and lead to changes with a view to the implementation of best practice strategies. The next section will explore the theory used in the research.

2.3 Experiential learning theory

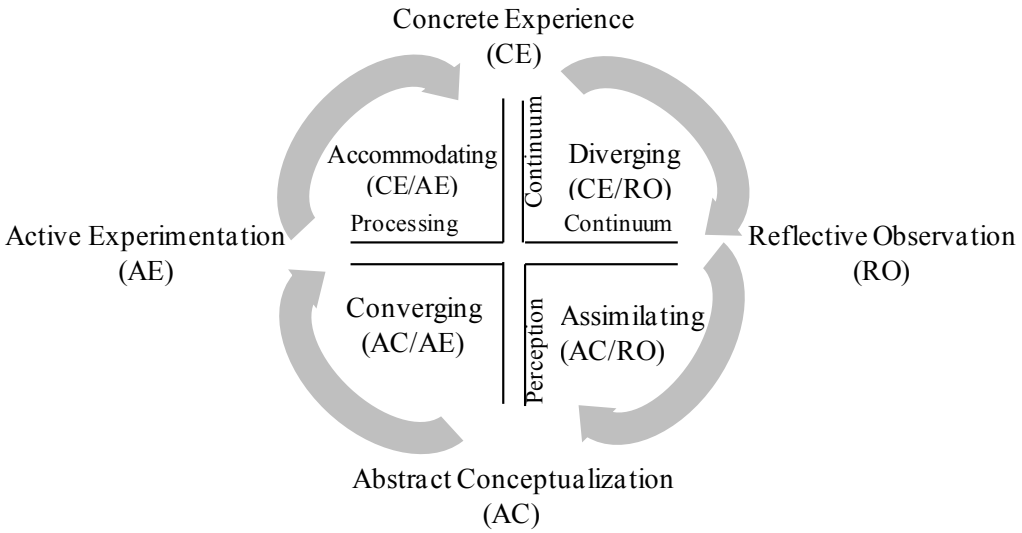
Many different theories have been raised and somehow applied to education since the 1950s. One that has received much attention is David A. Kolb's Experiential Learning Theory (ELT) from 1984. For Kolb (1984), learning can be seen as a continuous process grounded in experiences and opportunities to reflect upon these experiences. In brief, probably the most important aspect of ELT is that learning is considered as a process and not an outcome in itself. The ELT as we know it today integrates the works of scholars such as Kurt Lewin, John Dewey, Jean Piaget, among others.

ELT compiles six propositions, as cited by Kolb & Kolb (2008), which are:

a. Learning is best conceived as a process, not in terms of outcomes: the focus should be on engaging students in a process that best enhances their own learning with feedback on the effectiveness of their efforts. Students play a central role in their own learning;
b. All learning is re-learning: the student's beliefs should be examined, tested and integrated with new, more refined ideas. Learning is a continuous process, refinement requires going through the learning cycle many times;
c. Learning requires the resolution of conflicts between dialectically opposed modes of adaptation to the world: things such as conflicts, differences, and disagreement drive the learning process. During that process, the learner is to move back and forth between opposing positions of reflection, action, feeling, and thinking;
d. Learning is a holistic process of adaptation: learning involves the integrated functioning of the total person (thinking, feeling, perceiving, and behaving);
e. Learning results from synergetic transactions between the person and the environment: people model themselves according to the choice of actual occasions they go through;
f. Learning is the process of creating knowledge: social knowledge is created and recreated in the personal knowledge of the learner.

The above premises of ELT are contrary to the transmission model of other learning theories. Hence, ELT is a constructivist theory. Kolb (1984) says that individuals construct knowledge through the transformation of experiences into cognitive frameworks, thus causing individuals to change the way they think and behave.

In order to map the theory, Kolb (1984) developed a learning model as seen in Figure 1. This model encompasses the different learning styles individuals have and how individuals grasp and transform these experiences.



Source: Adapted from ALQahtani, D. A. & Al-Gahtani (2014).

Figure 1. Kolb's ELT

For effective learning to occur, the learner has to go through the entire cycle, although one can enter the cycle at any stage according to Kolb (1984). The learning cycle as seen in Figure 1 can be visually compared to a compass due to polar opposite dimensions. The vertical axis displays how we grasp or think about things, which is through concrete experience (CE) and abstract conceptualization (AC). The horizontal axis also contains polar opposite dimensions in relation to how we transform or do things, which are reflective observation (RO) and active experimentation (AE).

Kolb (1984) defines each mode as follows:

Concrete Experience: A CE orientation focuses on being involved in experiences and dealing with immediate human situations in a personal way. It emphasizes feeling more than thinking; a concern with the uniqueness and complexity of present reality over theories and generalizations; an intuitive, "artistic" approach over a systematic, scientific approach to problems.

Reflective Observation: A RO orientation focuses on understanding the meaning of ideas and situations by carefully observing and describing them. It emphasizes reflection and understanding over action and practical application; a concern with what is true or how things happen more than with what will work.

Abstract Conceptualization: An AC orientation focuses on using logic, ideas, and concepts. It emphasizes thinking rather than feeling; a concern with building general theories rather than intuitively understanding unique, specific areas; a scientific more than an artistic approach to problems.

Active Experimentation: An AE orientation focuses on actively influencing people and changing situations. It emphasizes practical applications as distinct from reflective understanding; a pragmatic concern with what works rather than with what is absolute truth; an emphasis on doing, more than observing.

Kolb (1993) also highlights key aspects learners encounter at each stage of the cycle and, because of this, the stages presented in the following paragraphs do not follow any specific order.

At the CE stage, learning occurs through specific experiences, relating to other people and through being sensitive to feelings and people (Kolb, 1993). Baker, Simon, and Bazeli (1987) complement that, in this stage, the purpose is to present students with samples of objects, artifacts, behavior processes, or phenomena found in practice. The CE phase also encompasses the ability to fully and openly engage oneself, without bias, in new experiences (Sutherland & Wolcott, 2002).

In the AE stage, individuals learn by showing the ability to get things done, taking risks and influencing people and events through action (Kolb, 1993). In this stage, there is the application of what has been learned in relation to the practical problems as practitioners would encounter them. In other words, it is the synthesis part of the learning cycle (Baker, Simon & Bazeli, 1987). This requires the use of theories to make decisions and solve problems (Sutherland & Wolcott, 2002).

In the stage of AC, learning occurs through the logical analysis of ideas, systematic planning, and action on an intellectual understanding of the situation (Kolb, 1993). This stage is when the student is required to play a more active role in the learning process and it is usually done through homework problems or cases. It is recommended that a laboratory environment be created for the learner to have discussions with others (Baker, Simon & Bazeli, 1987). Sutherland and Wolcott (2002) complement that this is where the ability to create concepts that integrate observations into logically sound theories come in handy.

Lastly, in the RO stage, learning happens through carefully observing before making judgments, viewing issues from different perspectives and looking for the meaning of things (Kolb, 1993). Baker, Simon, and Bazeli (1987) cite that, after students have observed concepts, these are proved deductively, expanded and added to related concepts and generalizations. The RO phase is also home to the ability in which one observes and reflects on experiences from a variety of perspectives (Sutherland and Wolcott, 2002).

Going through the whole cycle, the learner will feel, watch, think, and do. According to the ELT, the learner needs to touch all bases (CE, AC, RO, and AE) in a process in response to the learning situation and as well as to what is being learned. Kolb and Kolb (2008, pg. 5) report that in the learning cycle:

> […] the immediate or concrete experiences are the basis for observations and reflections. These reflections are assimilated and distilled into abstract concepts from which new implications for action can be drawn. These implications can be actively tested and serve as guides in creating new experiences.

According to McCarthy (2010), for effective learning to occur, the learner needs to continually choose which set of learning abilities to use in a specific learning situation, the cycle being composed of different stages, and each one of these stages can be used at any time for a specific learning occasion. Kolb and Kolbe (2008) complement that learning involves creative tension among the four learning modes that is responsive to contextual demands. Moreover, the position of the learner is determined by a combination of individual disposition and characteristics of the learning environment (Kolb & Kolb, 2008).

Kolb's work has been regarded as of great importance, as it sheds light on learning preferences and indicates that there are different approaches to different learning strategies. In the following section, a decisive part of Kolb's experiential learning theory will be presented: learning styles.

2.4 Kolb's learning styles

McCarthy (2010) depicts that learners will generally have a preference for a specific learning style and that, as the learning process develops, their preference might shift. The model described in the previous paragraphs assumes that there are two continuums or dimensions – perceiving, the extent to which an individual emphasizes abstractness over concreteness (AC-CE continuum); and processing, which is the extent to which an individual emphasizes action over reflection (AE-RO continuum). The learning style of an individual represents a combination of these two independent dimensions (Manolis, Burns, Assudani & Chinta, 2013) From the model, four types of learners emerge, which are: divergers, assimilators, convergers and accommodators.

The diverging learning style corresponds to individuals who learn (perceive learning) by way of concrete experience and process the learning through reflective observation. Persons of this learning style experience a situation and then look at the situation from many perspectives, learning from each of them. They are imaginative problem solvers who prefer to feel and watch (DiMuro & Terry, 2007). These students tend to enjoy tests that include unfamiliar questions and synthesize course content (DiMuro & Terry, 2007). Felder (1996) complements that these learners are interested in knowing why it is important for them to learn the course material and how it relates to their future careers.

The assimilator learning style marks people who learn by way of abstract conceptualization and process information through reflective observation. Persons of this learning style prefer individual reflection to class discussions. In individual problem solving, assimilators are less comfortable with identifying practical uses for theories and concepts. In preparing for tests, assimilators like detailed information about the scope and dislike surprises (DiMuro & Terry, 2007). Kolb & Kolb (2008) find that people with this learning style are best at understanding a wide range of information and putting it into a more concise, logical form. These individuals are more interested in ideas and abstract concepts. In informal learning situations, assimilators prefer readings, lectures, exploring analytical models and having time to think things through; these types of learners are important in science careers (Kolb & Kolb, 2008).

The converging learning style corresponds to individuals who learn through abstract conceptualization and process their learning through Active Experimentation. According to O'Leary and Stewart (2013), the greatest strength of convergers is in the practical application of ideas to solve problems and make decisions; these learners also use hypothetical deductive reasoning to focus on specific problems and perform best in situations where there is one correct answer. According to Kolb and Kolb (2008), persons with this learning style are best at finding practical uses for ideas and theories these learners prefer to deal with technical tasks and problems rather than with social and interpersonal issues. Convergers are particularly important for the effectiveness of technology careers, such as engineering and accounting (Kolb & Kolb, 2008).

The accommodating learning style relates to individuals who learn through Concrete Experience and process it through Active Experimentation. According to DiMuro & Terry (2007), these individuals have their strength in doing things, conducting plans and takings risks to excel in new situations. Kolb and Kolb (2008) say that these individuals prize "hands-on" experience and tend to act on "gut" feelings rather than on logical analysis. Moreover, these learners rely more heavily on people for information than on their own technical analysis (Kolb & Kolb, 2008). This learning style is effective for action-oriented careers, such as marketing or sales (Kolb & Kolb, 2008).

Kolb and Kolb (2008) also cite patterns of behavior associated with the four basic learning styles. These patterns occur through transactions with the environment at five different levels: personality, educational specialization, professional career, current job role and adaptive competencies. These behaviors and learning patterns are displayed in Table 1.

Table 1

Relationship Between Learning Styles and Five Levels of Behavior

Behavior Level	Diverging	Assimilating	Converging	Accommodating
Personality types	Introverted Feeling	Introverted Intuition	Extraverted Thinking	Extraverted Sensation
Educational Specialization	Arts, English, History, Psychology	Mathematics, Physical Science	Engineering, Medicine	Education, Communication, Nursing
Professional Career	Social Service, Arts	Sciences, Research, Information	Engineering, Medicine, Technology	Sales, Social Service, Education
Current Jobs	Personal Jobs	Information jobs	Technical Jobs	Executive jobs
Adaptive Competencies	Valuing Skills	Thinking skills	Decision skills	Action Skills

Source: Kolb and Kolb (2008).

In the next section, the literature on learning styles in accounting will be discussed.

2.5 Learning styles in accounting

Many different studies in the accounting area have used the Learning Styles Inventory (LSI). Kolb and Kolb (2008) cite that, in the period 1971-1999 alone, 22 studies were conducted and published. Most of the studies have found that accountants tend to be convergers (McKee, Mock & Ruud, 1992; Baker, Simon & Bazeli, 1986). Kolb and Kolb (2008) themselves say accountants are in mostly convergers.

Other studies have obtained results different from convergers when mapping accounting students' learning styles. Nogueira and Espejo (2010) found in their research (with Brazilian students) that there was a predominance of the assimilating learning style among the researched students and also that the statistical tests showed no impact of different learning styles on performance in Introductory and Management Accounting disciplines.

Valente, Abib, and Kusnik (2007) conducted research aiming to compare students and professors' learning styles at a public Brazilian university in search of a match. The results indicated that there is a discrepancy between the students and the professors' preferred way of learning. In other words, professors tended to teach through concepts and fundamentals, while the students preferred to learn through the encouragement of their experimental learning and self-discovery. The results also indicated a predominance of the accommodating learning style among students.

Geiger (1992) found that, among 157 respondents who took part in his survey (American institution), 68 were assimilators, 19 divergers, 42 convergers and 28 were accommodators. Learning style was also found to be significantly related to performance and the assimilators had outperformed all other types of learners.

Leite *et al.* (2008) researched the relationship between learning styles and academic performance in students affiliated with a Brazilian public institution. The results indicate the predominance of divergers in 55% of students who went to class in the morning and in 76% of students who had classes in the evening. Students with grade average A were mostly divergers. No indications of relations between academic performance and learning styles were found at a more general level.

Auyeung and Sands (1996) performed a cross-cultural study of accounting students' learning styles. The authors compared the learning styles of students in Australia, Hong Kong, and Taiwan. The results showed that the Australian students were predominantly accommodators, while the students from Hong Kong and Taiwan proved to be more of the assimilating style. The authors concluded that the Australian students represented more of the western individualistic culture and were thus more concrete and active, while the students from Hong Kong and Taiwan better portrayed the Chinese collectivistic culture, being more abstract and reflective.

Baker, Simon, and Bazeli (1987) conducted a research with first-year accounting students (in an American institution) and were surprised at the diversity found in the learning styles of the sample students. Results indicated that 44% of the students were assimilators, 31% convergers, 13% divergers, and 13% accommodators. One interesting point the authors cited is that a class with a large diversity of learning styles raises an unusual challenge for the instructor, as reaching all students at the same time will not be possible.

Since learning styles in accounting have been mapped into different styles and no study has correlated learning styles and internship performance, this study sought to find if different learning styles cause an impact on accounting internship performance. For instance, the accommodating learning style corresponds to individuals who learn through concrete experience, process their learning through active experimentation and prioritize "hands-on" experience. Then, this or another learning style more linked to practical knowledge could be associated with superior performance in the internship. This contributed to the following hypothesis:

H2: Learning styles impact the performance of accounting internships.

Another relevant aspect to analyze regarding learning styles is if there is any relation between the choice of the internship modality and the learning style. No studies or evidence were found to support research on whether learning styles impact the type of internship, even though this information could be important to signal the difference of styles between students who perform and do not perform non-mandatory internship, which led to the following hypothesis:

H3: Students taking mandatory internships have different predominant learning styles when compared to their non-mandatory counterparts.

3. Method

This research has a descriptive design. According to Bhattacherjee (2012), this type of research is best aimed at making careful observations and detailed documentation of a phenomenon of interest. Kothari (2004) complements that the main purpose of descriptive studies is the description of the present state of affairs and to accurately portray the characteristics of an individual, situation or group or, in other words, to map the terrain of a specific phenomenon. As information was collected to classify individuals by learning styles and other variables were mapped and further analyzed, it justifies the design of this study as descriptive. This study adopts a positivist approach. Studies that use the positivist approach aim to find the characteristics of a determined population or phenomenon, establishing relationships among variables and treating data with statistical techniques (Martins, 1997).

Data collection was administered by means of a survey, more specifically with the aid of two distinct research instruments (questionnaires). The first questionnaire was the Kolb Learning Style Inventory (KLSI) v. 3.1. The KLSI v. 3.1 is managed by the HayGroup®. To obtain the questionnaire, we contacted the HayGroup® via email to request permission to use their instrument for academic purposes, with a positive response. Due to contractual aspects established by the HayGroup®, subject to the signing of a conditional use agreement document, the questionnaire cannot be modified and published within this paper, the latter being required to preserve their rights over the product. The original Portuguese translated version was used as an instrument in this research. As this questionnaire has been used, improved and validated throughout the last decades, it was not necessary to apply a pretest. This instrument was proposed by Kolb and used in most of the studies cited on learning styles.

This instrument consists of three pages. The first one is the questionnaire per se. The second and third pages are used for graphical mapping of one's learning style according to the answers given on the first page.

In terms of the construct for the Learning Style Inventory, the details on the construction and how the questionnaire measures the learning styles by means of the scaling cannot be disclosed, as they are the property of the HayGroup®.

The second part of the data collection was done using another questionnaire to measure the student's self-perceived performance in the internship (Table 2).

Table 2
Performance assessment construct

Answered by Student		Measure	Source
Overall Performance assessment	Scale	Select the best alternative	Authors (2017)
Excellent	5		
Very Good	4		
Average	3		
Below average	2		
Unsatisfactory	1		

Source: Developed by the authors (2017)

Data treatment is quantitative. Statistical treatment was done using SAS and R software. As this study focuses on the learning styles and internship performance of accounting students at UEM, we have adopted the following variables:

- Dependent (y): Internship performance, as indicated by the student.
- Independent (x): Student Learning Styles, which were obtained by applying the KLSI v. 3.1.

With the variables in mind, this study compares the performance of mandatory and non-mandatory internships, given the premise that a free initiative system naturally inclines only students who take interest in value creating internship programs to prospect and select a company that best proposes an internship plan that suits them more properly. Then, the main objective is to verify if the student's learning style impacts the performance or not.

Lastly, this research tried to confirm if the predominant learning styles of students who engage in mandatory and non-mandatory internship programs are different, this based on the premise that a specific or determined profile would seek optional internships, as mandatory internships are already in place.

In order to answer the assumptions about performance and learning style and performance along internship modalities (H2 and H1), the mean score technique was used, in which scores $\boldsymbol{a} = (a1, a2, \ldots, ar)$ are attributed to the level of the response variable, thus making a mean score *fi* for each level of the covariate, enabling the examination of changes in the mean score (Stokes, Davis & Koch, 2000). This is done by the use of the following formula:

Whereby:

- *aj* is the score of the *j*-th treatment;

$$\bar{f}_i = \sum_{j=1}^{r} \frac{a_j n_{ij}}{n_{i+}} \quad i = 1, \ldots, s.$$

- *nij* is the observation in the category *i* of the covariable (*X*) and category *j* of the answer variable (*Y*);
- *ni*+ marginal total of the *i*-th line.

In statistical terms, this hypothesis can be expressed by:

$$\begin{cases} H_0: \bar{f}_1 = \cdots = \bar{f}_s \text{ (there are no changes in the mean score)} \\ H_1: \bar{f}_i 6 = \bar{f}_j \text{ (at least one mean score differs from the rest)} \end{cases}$$

About the null hypothesis, H_0 Stokes *et. al.* (2000) argue that the expectation and variance of $\bar{f}_i$ are respectively given by:

$$\mathbb{E}\left[\bar{f}_i \mid H_0\right] = \sum_{j=1}^{r} a_j \frac{n_{+j}}{n} = \mu_{\boldsymbol{a}},$$

$$\mathbb{V}\left[\bar{f}_i \mid H_0\right] = \frac{n - n_{i+}}{n_{i+}(n-1)} \sum_{j=1}^{r} (a_j - \mu_a)^2 \left(\frac{n_{+j}}{n}\right) = \frac{(n - n_{i+})}{n_{i+}(n-1)} \upsilon_{\boldsymbol{a}}.$$

whereby $\mu\alpha$ and $v\alpha$ are, respectively, the mean and the population variance of α score. The $\bar{f}_i$ quantity has an approximately normal distribution according to the central limit theorem. Thus, the mean score statistic is defined as:

In this formula, *QS* has a chi-square approximated distribution with (s – 1) degrees of freedom.

$$Q_S = \frac{n-1}{n} \frac{\sum_{i=1}^{s} n_{i+} (\bar{f}_i - \mu_{\boldsymbol{a}})}{\upsilon_{\boldsymbol{a}}}$$

The null hypothesis is rejected, with a significance level of α%, *if* $QS > X^2(\alpha, s-1)$, in which $X^2(\alpha, s-1)$ is the percentile 100 x α of the chi-square distribution with (s – 1) degrees of freedom.

To test the third premise (internship modality and learning style, H3), the chi-square statistic was used. More specifically, the chi-square technique was used as a homogeneity test (Bussab & Morettin, 2010).

It is important to note that this statistical technique comes with requirements, which are:

- Measurement level in at least a nominal scale;
- Expected frequencies above 5;

For the sake of better comprehension, consider the following notation:

- *i* indicates the line number;
- *j* indicates the column number
- *Oij* indicates the observed values of the *i*-th line and *j*-th column;

In statistical terms, the hypotheses are given by:

$$\begin{cases} H_0: P_1 = P_2 \text{ (The probability distribution of the lines is the same)} \\ H_1: P_1\ 6 \neq \mathrm{P}_2 \text{ (The probability distribution of the lines is different)} \end{cases}$$

According to Stokes *et. al.* (2000), the chi-square statistic is given by:

$$Q_p = \sum_{i=1}^{s} \sum_{j=1}^{r} \frac{(O_{ij} - E_{ij})^2}{E_{ij}}$$

whereby:

- s is the number of lines
- r is the number of columns

Supposing H_0 to be true, we note that the *Qp* statistic has a chi-square distribution with $(s-1)(r-1)$ degrees of freedom. The null hypothesis is rejected, to the level of significance of α, if $Qp > X^2(\alpha,s-1)(r-1)$, in which $X^2(\alpha,s-1)(r-1)$) is the percentile 100 x α of the chi-square distribution with $(s-1)(r-1)$ degrees of freedom.

The population of this study consists of all students who were enrolled in Accounting at UEM in the year 2016, corresponding to 533 students. The questionnaire was applied to 247 students. Of the 247 respondents, 160 had not taken or were still taking internships, and were therefore excluded from the sample. Thus, 87 was the final sample that answered the questionnaires.

4. Analysis and Interpretation of the Results

First, the descriptive statistics will be presented regarding all of the 247 observations. The vast majority of students is under 23 years of age. Only two students who answered the questionnaire are over 35 years of age.

There is also a predominance of female students (60%) among the respondents. This is in accordance with a study the Brazilian Accounting Council) (2016) developed in 2016, which shows that accounting has become a course that mainly receives female students.

Regarding the learning styles of the 247 responses, most students are identified as Assimilators (111%). The second most popular learning style within the respondents refers to the Convergers (57%), followed by the Divergers (46%). Finally, the learning style with the smallest number of representatives within the sample corresponds to the Accommodators with 33 observations (13%). The data are available in Table 3. According to the study by Kolb and Kolb (2005b), accountants are in majority Convergers, which is the second most popular learning style in the group of Accounting students at UEM.

Table 3.
Distribution of predominant learning styles within the sexes

	Styles				
Sex	Accommodator	Assimilator	Converger	Diverger	Total
Male	11	49	27	13	**100**
Female	22	62	30	33	**147**
All	33	111	57	46	**247**
%	13%	45%	23%	19%	**100%**

Source: developed by the authors (2017)

This result as to the majority of students being assimilators complies with the study by Nogeira and Espejo (2010), which was coincidently done with students from a university in the same state and only about 500 kilometers away from UEM. Similar results in terms of predominant learning styles were also found in the studies of Baker, Simon and Bazeli (1987), involving students from an American HEI, Geiger (1992) and partially in the study by Auyeung and Sands (1996), executed with students from Australia, Taiwan, and Hong Kong.

As most students are assimilators, it is interesting to enforce lectures and papers, this being the way in which assimilators learn best according to Kolb and Kolb (2008). On the other hand, in order to benefit the majority of students, a professor would have to refrain from simulations, case studies, mutual cooperation, and hands-on activities, which would benefit a small portion of the students who adopt the opposite learning style, being accommodators (Kolb & Kolb, 2008).

There are many specific areas of the accounting field in which students took internships. Of the 163 students who had already taken or were still taking internships, 80 worked with tax accounting. This high number was already expected as tax accounting offices represent the majority of employers of UEM's accounting students. In the management spectrum, 40 of these 163 students reported doing some management accounting work. In the public sector, 22 students worked in city halls, education departments, revenue departments and other public institutions doing public accounting. Regarding payroll accounting, 17 of the 163 students reported that they did activities related to the calculation of salaries, employee resignations, and other payroll-related tasks. Lastly, eight students reported working with accounting in the third sector. These eight students worked in Non-Governmental Organizations (NGOs) or accounting offices, doing their accounting. Students could respond that they worked with many different areas simultaneously.

In order to test the first hypothesis, the mean score technique was used:

H1: Non-mandatory accounting internship performance differs from mandatory accounting internship performance.

When tested, the following results emerge:

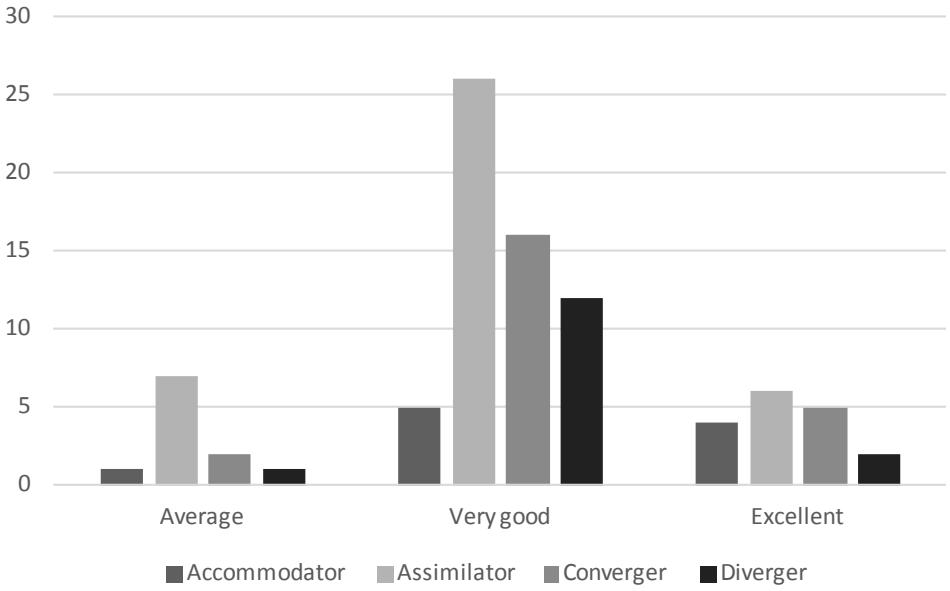
Table 4.
Internship performance and modality

Internship modality	Performance			Total
	Average	Very good	Excellent	
Mandatory	8	40	16	64
Non-mandatory	3	19	1	23
Total	11	59	17	87
Statistics Qs = 2.5245		p-*value* = 0,1121		

Source: developed by the authors (2017).

The results did not reach statistical significance. The results presented in Table 4 show that we reject the hypothesis (H1) though. In other words, the internship performance is not in any way related to the internship modality. Once again, this goes against the premise that originated the hypotheses, which is that, in a free initiative system, where a student could choose if he would like to do an internship or not, this would impact the performance. It is worth arguing that the existence of compulsory internships discourages students to attempt to pursue a more value-adding experience. This can be seen solely by looking at the proportion of students who take optional internships in relation to those who take mandatory ones (all of the students). If a more equivalent number of students took optional internships, more comparisons could be drawn.

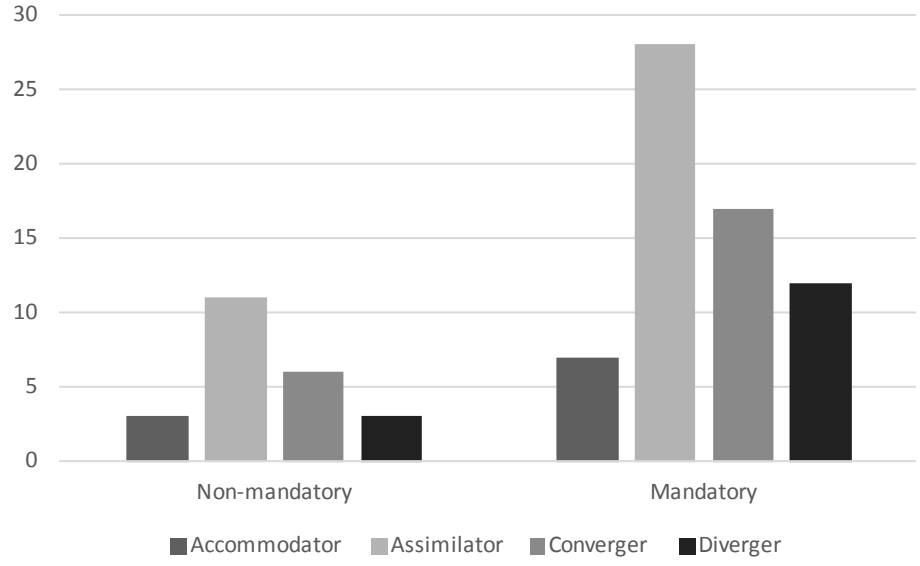
With regard to performance, it is important to note that none of the 87 respondents who had taken and finished their internships graded themselves below average. All of the responses indicated average, very good or excellent, in other words, there is limited variation in the results. Figure 2 shows the students' assessment of their internship modality and performance.



Source: developed by the authors (2017).

Figure 2. Internship modality and performance, considering 87 observations

The low variation in responses regarding self-perceived performance indicates that students approve their performance and feel as if they are meeting requirements. These responses can be seen in Figure 3, alongside the learning styles. The overall good performance could be explained by the low complexity of the interns' tasks.

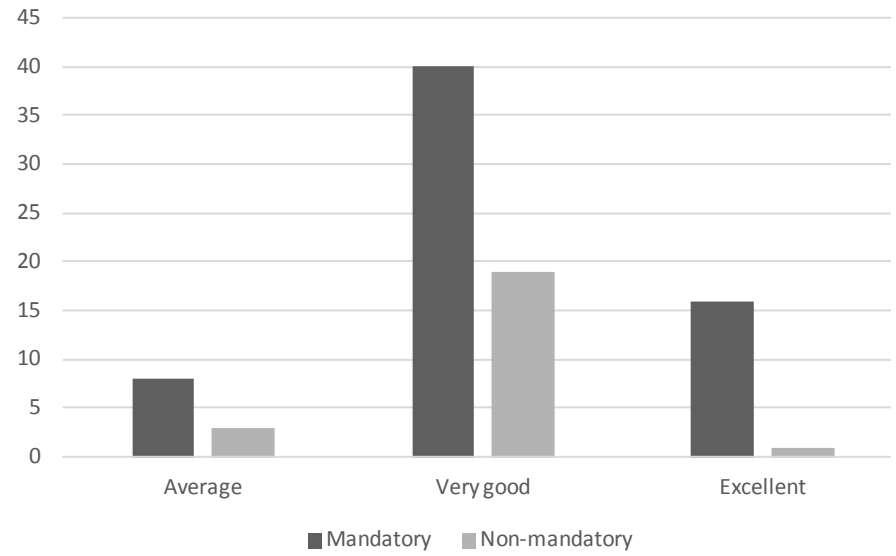


Source: developed by the authors (2017).

Figure 3. Learning styles and self-assessment of performance, considering 87 observations

Another explored benefit of internships regards the employability. Excluding the seven students working at public offices, who have limited time contracts with no potential of renewal, about 80% of the students were offered a chance to continue in the company as an effective full-time worker. Further questioning unveiled that about 60% of the students who were offered chances to remain in the company declined the invitation. The reasons for the refusals or acceptances were not explored in the study.

Regarding the internship modality amongst the 87 respondents, most of them underwent mandatory internships, as shown in Figure 4, along with the learning styles.



Source: developed by the authors (2017).

Figure 4. Learning styles and internship modality, considering 87 observations

Next, the results displayed in the figures above will be tested and further analyzed by means of statistical tools. In order to test the hypotheses concerning internship performance and learning styles, the statistical technique of mean scores was used, in which the following hypothesis was:

H2: Learning styles impact the performance of accounting internships.

When tested, the following results were obtained:

Table 5.
Internship performance and learning style

Learning style	Performance			Total
	Average	Very good	Excellent	
Accommodator	1	5	4	10
Assimilator	7	26	6	39
Converger	2	16	5	23
Diverger	1	12	2	15
Total	11	59	17	87
Statistics Qs = 3.0748		p-*value* = 0,3802		

Source: developed by the authors (2017).

The results did not reach statistical significance. The results presented in Table 6 highlight that we reject hypothesis H2. Thus, we verify that the learning style does not impact the internship performance for the sample tested. These results are contrary to the premise that the learning style of an individual directly affects his/her performance in internships, which led to the creation of these hypotheses. The low variation of performance itself would already suggest that the learning styles do not play a significant role in internship performance. There are two possible explanations that may have affected this outcome. Firstly, the sample size of 87 respondents could be a key factor to explain the low variation in performance. The second and most important aspect to observe is the type of job the interns are doing. Most students perform activities with low requirements for critical thinking and technical knowledge, simply recording financial transactions in

an accounting system. The low complexity of the activities itself may explain the above average performance observed. In summary, these factors or the combination of factors may have led to the low variation of answers and, consequently, the non-relation between learning styles and internship performance.

The third hypothesis to test was:

H3: Students of mandatory internships have different predominant learning styles from their non-mandatory counterparts.

In order to test this, the Chi-square technique was used, as the data met its requirements. This technique verifies the frequency distribution (Table 6).

Table 6.
Learning style and internship modality

Internship modality	Learning style				Total
	Accommodator	Assimilator	Converger	Diverger	
Non-mandatory	3	11	6	3	23
Mandatory	7	28	17	12	64
Total	10	39	23	15	87
Statistics Qp = 0.4490	p-value = 0.9299				

Source: developed by the authors (2017).

The results did not reach statistical significance, but indicate that we reject the hypothesis H3. In other words, students who took mandatory and non-mandatory internships have the same predominant learning style. This is opposite to the premise that motivated the hypothesis that students who sought non-mandatory internships would have a different learning style. It is obvious that, if there is no advantage in taking non-mandatory internships if there is a legal requirement to take one, not many students will undergo such arduous and energy consuming experience. In the sample surveyed, only about one-fourth of the students decided to take non-mandatory internships. The reasons for this were not explored in this study. One observation that can be drawn from Table 7 is that, unlike the other learning styles of the students who took non-mandatory internships, in the estimated proportion of 1:3 or 1:4, the accommodators were more likely to engage in non-mandatory internships, to an estimated proportion of 1:2.

We found that the students' learning styles did not impact their internship performance, with no relevant statistical disparity among learning styles regarding performance in the sample. This result goes contrary to the premise that motivated the study. On the other hand, it complies partially with the study by Nogueira and Espejo (2010). The result of this hypotheses test indicates that any type of learner can benefit from internships and not only learners who best learn from concrete experiences, which, in essence, is what internships are. For the host institution, it means that there should be no efforts taken to tailor different types of internships for students with different learning styles in order to improve performance. For the host companies, this implies that the performance of the trainees will not be altered by what and how work experiences are provided.

Although mandatory internship showed superior performance, it cannot be inferred that it is statistically relevant. One possible explanation might be that students who seek non-mandatory internships may encounter more challenging jobs and consequently have lower performance due to the greater complexity of the work done. Thus, the internship performance is not in any way related to the internship modality. This result means that the continuation of mandatory internships by UEM promotes employment and good performance, as the performance average was high according to both students and supervisors. For students, the implication of this result is that the internship modality is not the determining factor that affects their performance or, in other words, they can achieve high performance levels in both internship modalities. As, to the best of our knowledge, a search in the Capes database revealed no other study with the scope of these hypotheses, we cannot compare the findings.

Regarding performance as a whole, as it was overwhelmingly well assessed and as the majority of interns work with tax accounting, it might indicate that the high performance is due to the low level of complexity involved in the activities the interns are doing. Much of the time spent on the internship is doing repetitive low mental effort tasks such as registering electronic invoices and other business transactions in the system with a barcode.

The result of the chi-square statistical test reveals that there are in fact no differences in the predominant learning style of students opting for different internship modalities.

The implications of this result are that students do not view non-mandatory internships as essentially different from mandatory ones. Students might feel as if there is no advantage in taking non-mandatory internships, as they will necessarily have to go through a mandatory one. An issue that can be further investigated is that this current system of mandatory placements may discourage students from pursuing opportunities in companies for non-compulsory internships. In other words, the internship modality does not attract the students' attention based on their learning style but on other aspects, maybe based on their perception of necessity (financial, perhaps) and other potential benefits like future employability. As, to the best of our knowledge, a search in the Capes database revealed no other study with the scope of these hypotheses, we cannot compare the findings.

5. Conclusions and Recommendation

This study sought to correlate the performance of internships and learning styles. To do so, initially, a sample of 247 accounting students was surveyed and thereafter filtered to 87 students. Although mandatory internship showed superior performance, it cannot be inferred that it is statistically relevant. Thus, the internship performance is not in any way related to the modality of internship. We also found that the students' learning styles do not impact their internship performance as there is no relevant statistical disparity among learning styles regarding performance in the sample. This result goes contrary to the premise that motivated the study.

Regarding performance as a whole, as a result of the chi-square statistical test, there are in fact no differences in the predominant learning style of students opting for different internship modalities. The implications of this result are that students do not view non-mandatory internships as essentially different from mandatory ones. These results show that there is no association between the types of internship and the learning styles and the performance. Therefore, studies should deepen the analysis, perhaps in a qualitative way, in order to capture the problems and challenges with the aim of improving this type of learning.

A limitation of the study is that the results are limited to its sample and cannot be generalized. This study should be replicated in order to confirm or refute the results obtained. As the final sample was small in number in relation to the population, the data could be distorted. Thus, it would be interesting for upcoming studies to focus on obtaining a larger sample to minimize this effect. It would also be fulfilling if a study focused on the choice of non-mandatory internships and thus determined the motives that lead students into taking non-mandatory internships where there exists a legal requirement for mandatory ones.

Studies with the same method should consider other courses than accounting, such as business administration and economics, in order to compare predominant learning styles and the performance of internships. It would be curious to test learning styles and the performance of mandatory credit and optional credit disciplines in post-graduate courses of accounting, economics and business administration. Perhaps at a higher academic level, learning styles can play a more significant role in performance.

For the HEI where this study was developed, according to the results, the legal requirement of mandatory internships should be preserved except for students who are already employed, as the evidence shows that students approve their performance and the benefits of these programs are clear, especially in terms of self-perceived performance and potential employability.

Future research should also concentrate on developing a qualitative study on the contributions that internships bring to students' skills set, the enhancement of bonds between the academy and the business world and the benefits left for the company after the student has finished the programs.

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