Associations between learning styles, preferences for active methodologies and generations of undergraduate students in Accounting

Associações entre estilos de aprendizagem, preferências por metodologias ativas e gerações dos discentes de graduação em Contabilidade

Asociaciones entre estilos de aprendizaje, preferencias por metodologías activas y generaciones de estudiantes de pregrado en Contabilidad

Polliany Maisa Alves*
Mestre em Ciências Contábeis (UFU),
Uberlândia/MG, Brasil
alvespolliany@gmail.com
https://orcid.org/0000-0001-8736-8817 ⓘ

Denise Mendes da Silva
Doutora em Controladoria e Contabilidade (USP)
Professora da Faculdade de Ciências Contábeis (UFU),
Uberlândia/MG, Brasil
denise.mendes@ufu.br
https://orcid.org/0000-0002-1490-5148 ⓘ

Address of primary contact for correspondence*
Rua André José da Silva, n° 210, Bairro Salomão Drummond, CEP: 38181-108 – Araxá/MG, Brasil

Abstract
The aim of this study is to identify and analyze the association between learning styles, preferences for active methodologies, and generations of undergraduate Accounting majors. The study contributes to the improvement of the teaching-learning process, insofar as it offers guidance to students, teachers, and Higher Education Institutions as to which active methodologies develop the complete skill set for future accountants, including hard skills and soft skills, based on the knowledge of their learning styles and generations. Correspondence analysis, applied to a sample of 838 students, has made it possible to draw a profile for the comprehensive training of future accounting professionals, notably those from the Z generation. The skills required by the professional market, such as collaboration, communication, critical thinking, and problem solving are developed through the active methodologies preferred by Generation Z learning styles.
Keywords: Learning Styles; Active Methodologies; Generations; Accounting

Resumo
O objetivo deste estudo é identificar e analisar a associação entre estilos de aprendizagem (EA), preferências por metodologias ativas (MA) e gerações dos discentes de graduação em Ciências Contábeis. O estudo contribui com a melhoria do processo de ensino-aprendizagem, na medida em que oferece uma orientação aos discentes, aos docentes e às Instituições de Ensino Superior quanto às MA que atendem a uma formação integral do futuro contador, no que diz respeito a habilidades técnicas (*hard skills*) e comportamentais (*soft skills*), a partir do conhecimento dos EA e das gerações dos discentes. A análise de correspondência, aplicada a uma amostra de 838 discentes, possibilitou traçar um perfil para a formação integral dos futuros profissionais contábeis, notadamente da geração Z. Competências requeridas pelo mercado profissional, como colaboração, comunicação, pensamento crítico e solução de problemas são desenvolvidas por meio das MA preferidas pelos EA da geração Z.
Palavras-chave: Estilos de Aprendizagem; Metodologias Ativas; Gerações; Contabilidade

Resumen
El objetivo de este estudio es identificar y analizar la asociación entre estilos de aprendizaje (EA), preferencias por metodologías activas (MA) y generaciones de estudiantes de pregrado en Contabilidad. El estudio contribuye a la mejora del proceso de enseñanza-aprendizaje, en la medida en que ofrece orientación a estudiantes, docentes e Instituciones de Educación Superior en cuanto a los MA que asisten a una formación integral del futuro contador, en cuanto a competencias técnicas y habilidades conductuales,

Polliany Maisa Alves, Denise Mendes da Silva

basadas en el conocimiento de los EA y las generaciones de los estudiantes. El análisis de correspondencia, aplicado a una muestra de 838 estudiantes, permitió trazar un perfil para la formación integral de los futuros profesionales de la contabilidad, en particular de la generación Z. Las competencias requeridas por el mercado profesional, como la colaboración, la comunicación, el pensamiento crítico y la resolución de problemas, se desarrollan a través de MA preferidas por los estilos de aprendizaje de la generación Z.

Palabras clave: Estilos de aprendizaje; Metodologías activas; Generaciones; Contabilidad

1 Introduction

During the teaching-learning process there is an opportunity to develop autonomy in the construction of knowledge and the capacity to learn (Lima, Bezerra, & Silva, 2016). To Felder and Silverman (1988), the teaching-learning process can occur in various ways: students can learn by seeing and hearing; reflecting and acting; through rational or intuitive logic; memorizing, visualizing, and designing analogies, and constructing mathematical models. Professors also vary in terms of the methods they use according to their teaching objectives, and they may prefer lectures, demonstrations, or discussions; focusing on principles or applications; emphasizing memory or understanding. Thus, according to Lima et al. (2016), students' classroom learning will depend in part on their native capacity and previous preparation, and also in part on the compatibility of their learning styles with the professor's teaching style.

In this manner, by knowing the various learning styles of their students, it is possible to improve the quality of the teaching-learning process, making it possible to develop teaching methods and techniques which are appropriate to learning using each style (Cordeiro & Silva, 2012). In addition, the identification of learning styles makes it possible to recognize why some teaching methods function with some students and do not function with others, which is important information if we are seeking to improve the teaching-learning process (Simões, Melo, Batista, & Cirne, 2018).

The traditional teaching method treats students as if they possess similar characteristics and does not prioritize their individual aspects (Souza, Avelino, & Takamatsu, 2017). According to Butzke and Alberton (2017), in active methodologies which are based on student participation in the teaching-learning process, the learning style can help in the choice of the best context to use these strategies and contribute to the evolution of the use of technology in teaching. Moreover, these teaching techniques and methods can favor the involvement of various generations in the teaching-learning process.

A factor that has been observed with various generations is a change in the behavior of individuals over time due to sociocultural influences (Cardoso Sobrinho, Pinto, & Desidério, 2014). Colle, Ferreira, Lima and Silva (2017) believe that due to the significant differences in cultural, technological, and ideological characteristics of generations, we cannot discard the possibility that there are differences in learning styles among various generations.

Studies by Silva and Oliveira (2010) and Borges, Leal, Silva and Pereira (2018) indicate that knowledge of learning styles can contribute to the implementation of strategies and methodologies which will better suit their students' styles. Williams, Matt and Reilly (2014), Souza et al. (2017) and Araújo, Silva, Marques and Costa (2019) present evidence regarding differences between learning styles and generations/ages. Zomer, Santos and Costa (2018) demonstrate that students in different generations display distinct characteristics and behaviors in the classroom, which may indicate a preference for different teaching styles. However, we have not found studies that have made a triangulation between learning styles, active methodologies, and generations, especially in terms of Accounting majors in Brazil. This being so, we have identified a gap in the literature for this field which is worthy of investigation.

Within this context, we will ask the following question: what is the association between learning styles, preferences for active methodologies, and generations in the teaching of Accounting? Thus, the objective of this study is to identify and analyze the association between learning styles, preferences for active methodologies and generations of Accounting majors.

To attain this objective, we will investigate students in in-person Accounting majors offered by public and private Higher Education Institutions in Brazil, considering (i) the four dimensions of learning styles (Perception, Input, Processing and Understanding) according to Felder and Soloman's Learning Style Index; (ii) the four categories of active methodologies (Use of Art, Exhibition Based Strategy, Problematization and Dynamic) and the traditional methodology according to Nagib and Silva (2020); and (iii) four generations of students (BB, X, Y and Z), in keeping with the chronological classification proposed by Santos and Franco (2010).

The identification and joint analysis of three elements (Learning Styles, Active Methodologies and Generations) can help improve the teaching-learning process, increasing the potential development of technical abilities (hard skills) and behaviors (soft skills) required for accounting professionals in order to deal with businesses that are in constant transformation and the employing of international accounting norms. In considering various teaching styles, professors can plan and develop their activities contemplating the diversity of their students (Borges et al., 2018). In addition, the implementation of active methodologies can

help develop behavioral abilities as Nagib & Silva (2020) argue. Dolce, Emanuel, Cisa and Ghislieri (2020) state that there is a growing demand for graduates with behavioral abilities, mainly the abilities to work in teams and communication.

In this sense, the main contributions of this study to Higher Education Institutions, professors and students in Accounting, and society are, respectively: (i) orienting professors in terms of the methodologies which will provide an integral education for future accountants in terms of technical competencies (hard skills) and behavioral abilities (soft skills), based on knowledge of learning styles and various generations of students, considering their structural and contextual limitations, and their educational objectives in their Accounting majors; (ii) providing professors with a guide for using active methodologies which can stimulate learning styles and various generations of students; (iii) the use of active methodologies which increase the potential to develop the abilities and competencies desired by the market; (iv) offering society accountants who are much better prepared to perform their work through the development of skills and abilities provided by the use of methodologies which favor various learning styles and the involvement of various generations in the educational process. For the correlated literature, this study contributes by presenting a triangulation between learning styles, preferences for active methodologies, and various generations of Accounting majors, which makes it possible to trace a possible profile of students in this area with the ability to obtain an integral education (technical skills and behavioral abilities), which has not been contemplated by previous related studies.

2 A Review of the Literature and our Hypotheses

2.1 Learning Styles

Learning styles are characteristics of individuals' dominant preferences for receiving and processing information to develop their cognitive abilities (Lima et al., 2016) which can provide structures for the planning of teaching (Lizote, Alves, Teston, & Olm, 2019). Due to the preoccupation with the way that students learn, over the years there have been a number of investigations of learning styles in the areas of Education and Psychology (Cordeiro & Silva, 2012). According to Dias, Sauaia and Yoshizaki (2013), theoretical models of learning styles are based on differences among individuals which are derived from a variety of theoretical references. One of these models is Felder and Silverman (1988) (Table 1).

Table 1
ILS Dimensions and Learning Styles from Felder and Soloman (1988)

Dimension	Learning Styles	Description
Perception	Sensory	Students with this style prefer to work with data and experiments, like problem solving with standardized methods, are patient with details, are good at memorizing facts and are careful. However, they do not like surprises and complications, and they can be slow.
	Intuitive	Intuitive students prefer to work with principles and theories and they like innovation. They get bored with details and are good at understanding new concepts. They are quick, but they do not like repetition and can be careless.
Input	Visual	Visual students can easily remember information that they have seen such as figures, diagrams, flow charts, schedules, films, and demonstrations, and they have difficulty in remembering information that they have only heard.
	Verbal	Students with this style can remember things they have heard, especially those that they have heard and repeated. They like to discuss things and prefer verbal explanations, and they learn effectively by explaining things to others.
Processing	Active	Active students work well in groups and tend to be experimental. They do not do well in situations which require passive participation, such as lectures.
	Reflective	Reflective students work better alone or, at most, with one more person, and tend to be theoretical, and they have difficulty in learning in situations where they do have an opportunity to think.
Understanding	Sequential	Sequential students follow a process of linear logic when solving problems and they can work with subjects, even if they only understand them partially or superficially. They are good at thinking and possess convergent analysis, and they learn better when the content is presented as a constant progression in terms of difficulty and complexity.
	Global	Global students have difficulty in understanding partial or superficial material, and can be better at divergent thought and syntheses, and often do better proceeding directly to more complex and difficult subjects.

Source: Elaborated by the Authors based on Felder and Silverman (1988).

In 1991, Richard M. Felder and Barbara A. Soloman at North Carolina State University developed the Index of Learning Styles (ILS), an instrument which is used to measure learning styles based on the dimensions of Felder and Silverman's model (1988). Felder and Soloman's ILS evaluates learning preferences in four dimensions and each dimension is made up of two learning styles.

The Perception dimension verifies how people perceive the world around them through their senses, which is data observation and collection through the senses, and intuition which is indirect perception through the subconscious. Meanwhile, in the Input dimension, learning styles consider the way information is received: visually and verbally. In the Processing dimension, the information received is converted into knowledge in two ways: a) active experimentation, which is doing something external with information, such as discussing, applying, or testing it; and b) reflective observation, which is examining and manipulating information in an introspective manner (Felder & Silverman, 1988). Finally, the Understanding dimension considers the organization of information and the application of new facts and reflects their treatment by sequential steps or a global vision of the subject (Araújo et al., 2019).

Felder and Soloman's ILS is used in this study, because it is a very reliable instrument which is valid for the evaluation of learning styles as demonstrated by Felder and Spurlin (2005) and Litzinger, Lee, Wise and Felder (2007), and it has also been applied to the teaching of Accounting (Silva & Oliveira, 2010; Dias et al., 2013; Williams et al., 2014; Souza et al., 2017; Borges et al., 2018; Araújo et al., 2019)

According to Williams et al. (2014), one of the main reasons that there is awareness of learning styles is the need that the instructors and developers of courses of study have to increase their students' understanding to create stimulating and efficient learning environments. Cameron et al. (2015) demonstrate that a combination of learning styles and teaching methodologies is beneficial to Accounting education and also indicate that various methodologies can be significant in terms of the practice of Accounting, for example, and active methodologies can develop the abilities required of an accounting professional such as working as part of a team and communication, as well as technical knowledge.

2.2 Active Methodologies

Higher Education Institutions are designed to educate citizens in terms of theoretical-technical knowledge (hard skills) and behavioral and attitudinal abilities (soft skills) (Nagib & Silva, 2020). Soft skills are interpersonal abilities and behaviors which are necessary to apply theoretical knowledge in the business world. These abilities can prepare students to deal with the global business environment (Weber, Finley, Crawford, & Rivera, 2009; Villiers, 2010). To promote theoretical-technical knowledge together with the development of soft skills in the classroom, new teaching-learning methods have been designed to improve upon the traditional methodology (Nagib & Silva, 2020).

According to Diesel, Baldez and Martins (2017) traditional teaching is based on the conveying of content and students adopt a passive posture in the teaching-learning process. The student function is to observe the information presented by the professor, and often there is no room for the student to adopt a critical posture. On the other hand, in active methods, according to the cited authors, students come to be understood as historic subjects and assume an active role in learning. With this, their experiences, knowledge, and opinions are valued from the beginning of the construction of knowledge.

According to the Theory of Experiential Learning developed by Kolb (1984), knowledge is generated through the transformation of experience (Kolb & Kolb, 2005). By valuing the experiences and the realities of students, the Theory of Experiential Learning places the student at the center of the knowledge construction process, which supplies the base for active methodologies. Nagib and Silva (2020) present active methodology categories based on their characteristics and the ways they work with content, as can be seen in Table 2.

The methodologies cited in Table 2 treat students as the main subjects in the construction of their knowledge and stimulate abilities such as: creativity, improvisation, memorization, interaction, socialization, problem solving, working in groups, the exposition of ideas and respect for other opinions, which can help students in their future professional lives. In turn, Cruz, Miranda and Leal (2020) verify that active methodologies tend to develop the abilities proposed by the International Federation of Accountants (IFAC) better than the traditional methodology. Thus, the implementation of active methodologies can help the development of soft skills (Nagib & Silva, 2020).

Similarly, Gomes (2018) proposes a simplification of the skills and competencies required by the accountants, constituting a group of competencies of comprehensive accounting training. The author highlights some teaching methodologies that can contribute to the development of competencies, among them, active methodologies that are part of the categorization used in this study.

Table 2
Categorization of Active Methodologies

Category	Active Methodologies	Description
Use of Art	Storytelling	Has the ability to get the attention of students based on real or fictitious stories. It can stimulate creativity when the students create their stories.
	Dramatization	Seeks to work with student creativity, putting them in active situations where they write scripts and perform them. Develops the ability to improvise and memorize.
	Roleplay	Seeks to create a simulation environment in which students assume roles unlike their own. This technique seeks to stimulate creativity, interaction, socialization, and memorization.
	Films	This seeks to represent a studied theory through films which present real or fictional situations which represent a concrete example of what has been studied in the classroom.
Exhibition Based Strategy	Discussed Expository Lessons	This is the evolution of the traditional lesson, and knowledge is formed by the professor and the student in constant dialogue, even though the professor is responsible for the explanation of the content.
	Seminars	Makes students responsible for the creation of knowledge on a given subject by giving a presentation of this content to their colleagues.
	Flipped Classroom	Brings technology to the academic environment. To accomplish this, outside of the classroom the students will watch video lectures on the internet with theoretical content. The classroom is transformed into an environment for the solution of exercises and resolving doubts.
Problematization	Problem Based Learning	Seeks to work with logic and critical thinking to solve problems. It is a technique that makes it possible to present the solution during several semesters, or in other words, it fosters growing knowledge in phases.
	Case Method	Seeks to give the student a close look at real or fictional cases, followed by a discussion of the problem indicated by the subject.
Dynamic	Verbalization and Observation Groups	This methodology distributes students into two groups. The verbalization group is responsible for the discussion about a subject proposed by the professor. The observation group takes notes and makes observations about what was discussed.
	Integrated Panel	Promotes learning in an interactive manner and stimulates students to work in groups.
	Debates	This methodology creates a controlled discussion environment in which students are divided into groups according to their position concerning a subject. This develops the exposition of ideas and respect for other opinions.

Source: Adapted from Nagib and Silva (2020).

Table 3 synthesizes, according to the grouping of comprehensive accounting training competencies proposed by Gomes (2018), the skills and competencies developed by the active methodologies, based on the studies by Leal, Miranda and Casa Nova (2017) and Gomes (2018), and relates to the active methodologies categories of Nagib e Silva (2020).

Table 3
Active Methodology Categories and Skills Needed for a Comprehensive Accounting Training

Active Methodology Categories	Skills
Use of Art	Communication, critical thinking, and problem solving.
Exhibition based strategy	Communication, critical thinking, and problem solving.
Problematization	Collaboration, communication, critical thinking, and problem solving.
Dynamic	Collaboration; communication and critical thinking.

Source: Prepared by the Authors in accordance with Leal et al. (2017), Gomes (2018) and Nagib and Silva (2020).

We can see in Table 3 that by combining the use of active methodologies in the classroom it is possible to contribute to the development of skills and promote a complete education for future accountants. In addition, according to Colle et al. (2017), different generations can present learning styles, preferences for active teaching-learning methodologies and distinct perceptions of the world.

2.3 Generations

To McCrindle and Wolfinger (2009), a generation is defined as a group of people who were born during a similar time interval, who share comparable ages, and lives shaped by a specific period. According

to Bortoluzzi, Back and Olea (2016) generations differ in terms of their beliefs, values, and priorities. These differences are consequences of the time when the individuals of each generation were raised.

The years which define the periods of generations are presented in the literature in various forms, but with few differences (Santos & Franco, 2010; Zomer et al. 2018). In Table 4 we describe the main characteristics of each generation, which could be related to the way they receive and process information and construct knowledge.

Table 4
Generation characteristics

Generations	Characteristics	Authors
Baby Boomer	They display discipline in the construction of knowledge together with traditional reading of books and academic articles.	Santos and Franco (2010)
	They tend to be avid learners, consider education important, and are more likely to be involved in learning activities and seek independent learning.	Coates (2007)
	They can have difficulties with technology. Most of them learn content through lectures and notes. They learn better when their personal experiences are linked to the subject.	Johnson and Romanello (2015)
X	The way that they assimilate information and construct knowledge is influenced by the characteristics of the thinking construction process of the Baby Boomer Generation, and the basic command of technology and virtual environments which are predominant in the new generations.	Santos and Franco (2010)
	This generation prefers that information is presented in a direct manner, in the easiest and quickest way possible. They learn quickly and efficiently and only want to learn what benefits them directly. They appreciate flexible learning and are better when they learn in their own ways.	Johnson and Romanello (2015)
Y	This is the first generation to have a greater knowledge of technology. They are multifaceted, have a systemic vision, live in motion, are individualistic, and administrate their time well.	Comazzetto, Vasconcellos, Perrone and Gonçalves (2016)
	They have difficulty in concentrating on one task and prefer multitasking. They have difficulties in critical analysis, but have fun working in groups. They use technology whenever they can and prefer experiential activities. Multitasking, and positive and collaborative attitudes are their strong points.	Johnson and Romanello (2015)
Z	The first truly global generation. They are visually involved and educationally reformed. Broadly involved with and influenced by their peers.	McCrindle and Wolfinger (2009)
	They can present problems in interpersonal relations and difficulties with traditional school structures. They are quick and agile with computers. Their verbal communication is affected by the constant use of technology.	Santos and Franco (2010)
	Characterized by frenetic behavior, fragmented and accelerated rhythm. They demand new educational and managerial practices. Their way of thinking is strongly influenced by technology.	Ceretta and Froemming (2011)

Source: Prepared by the Authors.

To Djiwandono (2017), advances in computer technology and communication gives Generation Z students a different predisposition and attitude in terms of learning. While their parents and grandparents were accustomed to gaining knowledge through professors and books, Generation Z have learning resources that they can easily access through portable devices. According to this author, learning styles among different generations of students can change in keeping with changes in society and modern technology.

As we have seen in this section, different generations present different behaviors, ambitions and characteristics, including the way in which they relate to technological instruments, besides differences in the assimilation of information and the construction of knowledge. In line with Johnson and Romanello (2015), it is understood that an understanding of the differences between the generations can help the student body achieve their learning goals, or in other words, student learning styles with the use of certain strategies, such as active methodologies.

2.4 Related Studies and Study Hypotheses

Brazilian and international studies have analyzed learning styles, active methodologies, and different generations of Accounting and other business majors using the Felder and Silverman model. However, none of these have related these three elements in the same study.

Silva and Oliveira Neto (2010) suggest that, through discussion and reflection on the adoption of teaching and learning strategies, methodologies can be implemented which will stimulate less-favored learning styles. They conclude that, depending on the combination of professor, student and discipline learning styles, specific strategies can be adopted to improve the teaching-learning process, and as a consequence, performance. In other words, learning styles can reveal preferences for given methodologies and professors, who based on their knowledge of these styles can adjust their methods which will favor academic performance. Borges et al. (2018) consider the knowledge of learning styles to be relevant to adjusting teaching methods and involving students in their learning, which improves the teaching-learning process.

The studies of Silva and Oliveira (2010) and Borges et al. (2018) seek to analyze learning styles and student academic performance and argue that knowledge of strategies and methodologies can contribute to the implementation of strategies and methodologies which better fit the styles of their students' learning styles, thus improving the teaching-learning process. Furthermore, in accordance with Table 1, individuals with different learning styles differ in the way they receive and process information and possess distinct preferences in learning which can be surprised by the various forms of content that can be applied through active methodologies. Based on this, our first research hypothesis is:

H1: Student learning styles among Accounting majors are associated with preferences for active methodologies.

Williams, Matt and Reilly (2014) seek to verify the relationship between learning styles, generations, and online learning. The generation groups reported slight preferences in both learning styles within each dimension, but in the visual-verbal dimension, the Baby Boomer participants were more strongly inclined to have a verbal preference, and Generation Y displayed less satisfaction. This result is in keeping with the findings of Johnson and Romanello (2015), who demonstrate that most Baby Boomers learn content through lectures and notes, which indicates a preference for the verbal style of learning. In addition, Johnson and Romanello (2015) point out that Generation Y students, even though they use technology whenever possible, tend to enjoy working in a group, and prefer experiential activities presenting collaborative characteristics, which could explain their lesser satisfaction with online learning compared to the other generations analyzed in the study.

Souza, Avelino and Takamatsu (2017) emphasize that the coexistence of different generations in the classroom can present challenges to professors who need to deal with the anxieties and needs of various generations. In turn, Araújo et al. (2019) verify that there is a significant association between learning styles, student semester, and age, suggesting changes in the way in which Accounting students learn over time. In other words, they observe that as people get older, their learning styles may change.

These studies present evidence related to the differences between generations/ages and learning styles, which makes it possible to formulate the following research hypothesis:

H2: The learning styles of Accounting majors are associated with generations.

Zomer et al. (2018) analyze student profiles in relation to Generations X, Y and Z and observe a low to moderate level of influence of the generations in some situations. One of the major differences observed was a more committed and engaged profile in the classroom on the part of Generation X compared to other generations. On the other hand, Generation Y identified a student profile which appreciates a more flexible environment in terms of requirements and rules as well as a greater tendency to be distracted than other generations. Generation Z students presented a diffuse profile with antagonistic preferences and, despite their intimacy with technology, which is a strong characteristic of this generation, the students who participated in this study did not express an interest in using technology in the classroom. The authors point out that some of the preferences presented by students in different generations reinforced the proposal of using more active teaching methodologies.

This study demonstrates that students in Generations X, Y and Z display distinct characteristics and behaviors in the classroom, which may indicate a preference for different teaching methodologies, which leads us to our third research hypothesis:

H3: Generations of Accounting majors are associated with preferences for active methodologies.

According to our review of the literature, various generations can present distinct behaviors and characteristics which reflect their teaching-learning processes. Thus, students in different generations can present specific preferences for learning, or in other words, they can possess different learning styles and as a result different preferences for active methodologies. Thus, we can formulate our fourth hypothesis:

H4: Learning styles, preferences for active methodologies and different generations of Accounting majors are associated characteristics.

3 Methodological Procedures

To achieve this study's objective, we have studied Accounting majors in Brazil. Since a questionnaire was used, participation was voluntary and a total 842 responses were collected within the necessary timeframe, with four of them being discarded due to their being considered invalid or incomplete. Thus, our sample consists of 838 students (valid questionnaires), in various student semesters (depending on which HEI they were studying at).

The questionnaire was divided into three parts, content: (i) 6 questions about the demographic profile of the students and the generation they belong to, among other characteristics; (ii) 44 questions from Felder and Soloman's ILS translated into Portuguese, extracted from the works of Borges (2016) and (Lopes, 2002), to identify the learning styles; and (iii) 5 questions adapted from Nagib's study (2018), involving scenarios with the application of 4 categories of active methodologies and the traditional methodology to identify the degree of student preferences for these methodologies, considering the following Likert scale: I disapprove, I slightly disapprove, I am indifferent, I approve, I strongly approve. Before applying the questionnaire, we performed two pre-tests to verify the existence of any questions or information which could lead to doubts on part of the respondents.

For the data collection, we initially constructed a database of Brazilian HEI emails which offer in-person Accounting courses of study. The Higher Education Institutions were researched on the Ministry of Education's website and the emails of the department coordinators were obtained through access to public and private HEI websites. The majors whose institutional websites did not include coordinator emails were not included in our sample due to the unavailability of the contact information.

We then made the questionnaire available through the Google Forms platform and sent the access links to the department coordinators using our database asking them to resend this link to students registered as Accounting majors. The questionnaire was open for responses from June 17 to August 30, 2020.

To analyze the data, we used statistical techniques in keeping with this study's hypotheses, as follows: a) to describe the student profiles in terms of learning styles, generations, and preferences for active methodologies, we used descriptive statistics; b) to verify statistically the association between the study variables, we used correspondence analysis and multiple correspondence analysis to treat category variables. Initially we verified, through the Chi-squared test (χ^2), associations between: (i) the learning style dimensions and preferences for active methodology categories; (ii) the learning style dimensions and the generations; and (iii) the generations and the preferences for active methodology categories. Later, we performed an analysis of the adjusted standardized residuals for the cases with a significant χ^2 statistic (sig ≤ 0.05). The variables are not associated in a random fashion if the standardized residual has a critical value above 1.96. Finally, we evaluated the associations among the learning style dimensions, the preferences for active methodologies categories, and various generations, using multiple correspondence analysis.

4 Presentation and Analysis of the Results

This study's sample is made up of 838 responses from students in in-person Accounting majors offered by Brazilian Higher Education Institutions. Table 5 displays the demographic data for these students.

Table 5
Student Demographic Data

Demographic data	N	%
Gender		
Female	522	62.3
Male	304	36.3
Agender or non-binary	8	1.0
Preferred not to respond	4	0.5
Total	**838**	**100**
Region		
Southeast	341	40.7
South	234	27.9
Northeast	189	22.6
Midwest	53	6.3
North	21	2.5
Total	**838**	**100**
Type of HEI		
Public	572	68.3
Private	254	30.3
Community	12	1.4
Total	**838**	**100**

Demographic data	N	%
Semester		
First to fifth semester	491	58.6
Sixth to tenth semester	347	41.4
Total	**838**	**100**

Source: Prepared by the Authors.

As we can see from Table 5, the demographic profile of the sample is mostly made up of female students from the southeastern regions, which are in the first half of their degree in public Higher Education Institutions.

4.1 Analysis of Learning Styles, Preferences for Active Methodologies, and Different Generations

Through descriptive statistics it was possible to analyze learning styles, preferences for active methodologies, and different generations of students. Table 6 presents the number of students with each learning style according to their preferences in terms of active methodology categories.

Table 6
Learning Styles and Preferences for Active Methodologies

AM	Preference	PERC Sensory N	%	Intuitive N	%	INPU Visual N	%	Verbal N	%	PROC Active N	%	Reflexive N	%	UNDE Sequential N	%	Global N	%
ART	Disapprove	135	18.4	11	10.4	90	16.3	56	19.6	60	13.1	86	22.6	99	17.7	47	16.8
	Slightly Disapprove	169	23.1	14	13.2	124	22.4	59	20.7	100	21.8	83	21.8	135	24.2	48	17.1
	Indifferent	110	15.0	17	16.0	79	14.3	48	16.8	68	14.8	59	15.5	85	15.2	42	15.0
	Approve	231	31.6	40	37.7	181	32.7	90	31.6	158	34.5	113	29.7	169	30.3	102	36.4
	Strongly Approve	87	11.9	24	22.6	79	14.3	32	11.2	72	15.7	39	10.3	70	12.5	41	14.6
	Total	**732**	**100**	**106**	**100**	**553**	**100**	**285**	**100**	**458**	**100**	**380**	**100**	**558**	**100**	**280**	**100**
EXHI	Disapprove	97	13.3	8	7.5	73	13.2	32	11.2	46	10.0	59	15.5	82	14.7	23	8.2
	Slightly Disapprove	152	20.8	15	14.2	110	19.9	57	20.0	76	16.6	91	23.9	116	20.8	51	18.2
	Indifferent	91	12.4	17	16.0	69	12.5	39	13.7	59	12.9	49	12.9	63	11.3	45	16.1
	Approve	297	40.6	46	43.4	219	39.6	124	43.5	202	44.1	141	37.1	225	40.3	118	42.1
	Strongly Approve	95	13.0	20	18.9	82	14.8	33	11.6	75	16.4	40	10.5	72	12.9	43	15.4
	Total	**732**	**100**	**106**	**100**	**553**	**100**	**285**	**100**	**458**	**100**	**380**	**100**	**558**	**100**	**280**	**100**
PROB	Disapprove	19	2.6	0	0.0	15	2.7	4	1.4	12	2.6	7	1.8	16	2.9	3	1.1
	Slightly Disapprove	59	8.1	5	4.7	39	7.1	25	8.8	30	6.6	34	8.9	51	9.1	13	4.6
	Indifferent	75	10.2	10	9.4	61	11.0	24	8.4	48	10.5	37	9.7	57	10.2	28	10.0
	Approve	352	48.1	42	39.6	263	47.6	131	46.0	209	45.6	185	48.7	262	47.0	132	47.1
	Strongly Approve	227	31.0	49	46.2	175	31.6	101	35.4	159	34.7	117	30.8	172	30.8	104	37.1
	Total	**732**	**100**	**106**	**100**	**553**	**100**	**285**	**100**	**458**	**100**	**380**	**100**	**558**	**100**	**280**	**100**
DYNA	Disapprove	77	10.5	10	9.4	61	11.0	26	9.1	34	7.4	53	13.9	63	11.3	24	8.6
	Slightly Disapprove	133	18.2	12	11.3	96	17.4	49	17.2	58	12.7	87	22.9	105	18.8	40	14.3
	Indifferent	123	16.8	12	11.3	96	17.4	39	13.7	73	15.9	62	16.3	89	15.9	46	16.4
	Approve	272	37.2	29	27.4	191	34.5	110	38.6	182	39.7	119	31.3	198	35.5	103	36.8
	Strongly Approve	127	17.3	43	40.6	109	19.7	61	21.4	111	24.2	59	15.5	103	18.5	67	23.9
	Total	**732**	**100**	**106**	**100**	**553**	**100**	**285**	**100**	**458**	**100**	**380**	**100**	**558**	**100**	**280**	**100**
TRAD	Disapprove	198	27.0	34	32.1	152	27.5	80	28.1	151	33.0	81	21.3	155	27.8	77	27.5
	Slightly Disapprove	190	26.0	25	23.6	149	26.9	66	23.2	119	26.0	96	25.3	125	22.4	90	32.1
	Indifferent	141	19.3	20	18.9	96	17.4	65	22.8	89	19.4	72	18.9	96	17.2	65	23.2
	Approve	140	19.1	18	17.0	107	19.3	51	17.9	68	14.8	90	23.7	122	21.9	36	12.9
	Strongly Approve	63	8.6	9	8.5	49	8.9	23	8.1	31	6.8	41	10.8	60	10.8	12	4.3
	Total	**732**	**100**	**106**	**100**	**553**	**100**	**285**	**100**	**458**	**100**	**380**	**100**	**558**	**100**	**280**	**100**

Source: Prepared by the Authors. Notes: AM = Active methodologies; PERC = Perception; INPU = Input; PROC = Processing; UNDE = Understanding; N = Number of observations; ART = Use of Art; EXHI = Exhibition Based Strategy; PROB = Problematization; DYNA = Dynamic; TRAD = Traditional.

We can verify that most of the sample students presented a Sensory, Visual, Active, and Sequential Learning Style. These results are similar to those of Silva and Oliveira (2010), Borges (2016), Souza et al. (2017), and Borges et al. (2018), which indicates a possible profile of learning styles for Accounting students. However, in terms of Araújo et al. (2019), the results diverge in the Processing and Understanding dimensions, which shows that learning styles can change over time, making it impossible to trace a unique style profile in the teaching of Accounting. Thus, it is important to define strategies that can function for various learning styles, such as the utilization of active methodologies.

Most of the sample students prefer methodologies from the Problematization, Dynamic, Exhibition Based Strategy, and the Use of Art categories, in that order. On the other hand, the traditional methodology was the one which was least preferred by these students. Thus, the students preferred active methodologies that promote: interdisciplinarity, working in teams, a sense of responsibility, decision making and simulated experiences, and those which stimulate dialogue, communication, leadership, and imagination (Leal et al. 2017). They did not approve of methodologies in which they need to assume a passive role, observing the information conveyed by the professor.

In other words, the active methodology categories (Use of Art, Exhibition Based Strategy, Problematization, and Dynamic) were most preferred among the predominant student learning styles (Sensory, Visual, Active, and Sequential). The traditional methodology was most disapproved among the students with these styles. These findings are in keeping with the characteristics of these learning styles and the form that content is conveyed in the classroom through active methodologies. These results can also be related to the characteristics of the students' generations. Table 7 displays the number of students within each generation and learning style.

Table 7
Learning Styles and Generations

Dimension	Learning Style	BB		X		Y		Z	
		N	%	N	%	N	%	N	%
PERC	Sensory	6	66.7	39	90.7	141	84.9	546	88.1
	Intuitive	3	33.3	4	9.3	25	15.1	74	11.9
	Total	**9**	**100**	**43**	**100**	**166**	**100**	**620**	**100**
INPU	Visual	4	44.4	32	74.4	93	56.0	424	68.4
	Verbal	5	55.6	11	25.6	73	44.0	196	31.6
	Total	**9**	**100**	**43**	**100**	**166**	**100**	**620**	**100**
PROC	Active	6	66.7	21	48.8	74	44.6	357	57.6
	Reflective	3	33.3	22	51.2	92	55.4	263	42.4
	Total	**9**	**100**	**43**	**100**	**166**	**100**	**620**	**100**
UNDE	Sequential	5	55.6	29	67.4	104	62.7	420	67.7
	Global	4	44.4	14	32.6	62	37.3	200	32.3
	Total	**9**	**100**	**43**	**100**	**166**	**100**	**620**	**100**

Source: Prepared by the Authors. Notes: BB = Baby Boomer; N = Number of observations; PERC = Perception; INPU = Input; PROC = Processing; UNDE = Understanding.

Most of the sample students belong to Generation Z, followed by Generation Y. The Baby Boomer Generation had the smallest representation in the sample. The distribution of ages among Accounting majors has been examined in several studies such as: Borges (2016) up to 24; Souza et al. (2017), between 21 and 25; Borges et al. (2018) up to 20; and Araújo et al. (2019) up to 25. According to the chronological order of Santos and Franco (2010) and the publication of each study, these studies mostly belonged to Generations Y and Z, which is similar to the findings of this study.

We can see from Table 7 that the predominant styles in all of the generations are Sensory in the Perception dimension and Sequential in the Understanding dimension. In the Input dimension, the Verbal style prevails, at least among Baby Boomer students. In terms of the Processing dimension, we see a preponderance of the Active style among Baby Boomer and Z Generation students, while most of the X and Y Generations have a Reflective style. Generation X presented learning styles which are in keeping with the characteristics of their generation. On the other hand, the rest of the generations in some of the dimensions presented divergencies between the learning styles of most of the students and the characteristics of their generations.

It should be noted that according to Silva and Oliveira (2010), Borges (2016), Souza, Avelino and Takamatsu (2017), and Borges et al. (2018), Accounting majors have Sensory, Active and Sequential Learning Styles, which could justify cases in which the generation characteristics are not in keeping with the learning styles, which suggests that in these cases the student characteristics in this major could be overshadowing the generational characteristics. Table 8 displays the number of students in each generation according to their preferences for active methodology categories.

Table 8
Preferences for Active Methodologies and Generations

Category	Preference	BB N	BB %	X N	X %	Y N	Y %	Z N	Z %
ART	Disapprove	0	0.0	7	16.3	37	22.3	102	16.5
	Slightly Disapprove	1	11.1	14	32.6	34	20.5	134	21.6
	Indifferent	3	33.3	6	14.0	25	15.1	93	15.0
	Approve	4	44.4	13	30.2	53	31.9	201	32.4
	Strongly Approve	1	11.1	3	7.0	17	10.2	90	14.5
	Total	**9**	**100**	**43**	**100**	**166**	**100**	**620**	**100**
EXHI	Disapprove	2	22.2	4	9.3	20	12.0	79	12.7
	Slightly Disapprove	0	0.0	10	23.3	35	21.1	122	19.7
	Indifferent	1	11.1	10	23.3	14	8.4	83	13.4
	Approve	4	44.4	19	44.2	69	41.6	251	40.5
	Strongly Approve	2	22.2	0	0.0	28	16.9	85	13.7
	Total	**9**	**100**	**43**	**100**	**166**	**100**	**620**	**100**
PROB	Disapprove	0	0.0	1	2.3	3	1.8	15	2.4
	Slightly Disapprove	0	0.0	5	11.6	10	6.0	49	7.9
	Indifferent	2	22.2	8	18.6	15	9.0	60	9.7
	Approve	4	44.4	22	51.2	87	52.4	281	45.3
	Strongly Approve	3	33.3	7	16.3	51	30.7	215	34.7
	Total	**9**	**100**	**43**	**100**	**166**	**100**	**620**	**100**
DYNA	Disapprove	0	0.0	2	4.7	33	19.9	52	8.4
	Slightly Disapprove	2	22.2	10	23.3	27	16.3	106	17.1
	Indifferent	2	22.2	11	25.6	23	13.9	99	16.0
	Approve	3	33.3	16	37.2	58	34.9	224	36.1
	Strongly Approve	2	22.2	4	9.3	25	15.1	139	22.4
	Total	**9**	**100**	**43**	**100**	**166**	**100**	**620**	**100**
TRAD	Disapprove	5	55.6	14	32.6	48	28.9	165	26.6
	Slightly Disapprove	2	22.2	9	20.9	38	22.9	166	26.8
	Indifferent	2	22.2	12	27.9	33	19.9	114	18.4
	Approve	0	0.0	5	11.6	33	19.9	120	19.4
	Strongly Approve	0	0.0	3	7.0	14	8.4	55	8.9
	Total	**9**	**100**	**43**	**100**	**166**	**100**	**620**	**100**

Source: Prepared by the Authors. Notes: BB = Baby Boomer; N = Number of observations; ART = Use of Art; EXHI = Exhibition Based Strategy; PROB = Problematization; DYNA = Dynamic; TRAD = Traditional.

When we verify the quantity of students from each generation, in accordance with their preferences for active methodology categories, we can see that most of the students in all of the generations slightly or strongly like active methodologies in the Exhibition Based Strategy, Problematization and Dynamic categories and thus do not like or slightly like the traditional methodology. Only students in the Baby Boomer Generation, the least representative group in the sample, approve or strongly approve of active methodologies in the Use of Art category. In turn, Generation X disapprove or slightly disapprove of active methodologies that involve the Use of Art.

4.2 Application of Correspondence Analysis

For the application of the correspondence analysis, we excluded students from the Baby Boomer and X Generations, due to their low representation among the sample generations (1.1% and 5.1% respectively). Thus, we verified the associations among learning methods and active methodologies just for Generations Y and Z which totaled 786 students.

4.2.1 Learning Styles and Preferences for Active Methodologies

The values for the χ^2 test for preferred active methodology categories, according to the students' learning style dimensions, are displayed in Table 9. As can be seen from Table 9, there is a statistically significant association, at a level of 5% (sig ≤ 0.05), between: a) the learning style dimension Perception and the Use of Art, Problematization and Dynamic categories; b) the Processing dimension and the Use of Art, Exhibition Based Strategy, Dynamic categories and the traditional methodology; and c) the Understanding dimension and the Exhibition Based Strategy and Problematization categories and the traditional methodology. Thus, only the Input dimension did not present an association with the active methodology categories and the traditional methodology, even though the descriptive statistics showed that most students with Visual learning styles had preferences for active methodology categories and disapproved or slightly disapproved of the traditional methodology. Based on these results, we can deduce that Hypothesis H1 has

been partially rejected, or in other words, the learning styles of Accounting majors are associated with preferences for active methodologies, except for the Input dimension (Visual/Verbal).

Table 9
χ² Test: Learning Styles and Preference for Active Methodologies

	PERC			INPU			PROC			UNDE		
	Value	df	Sig.	Value	df	Sig.	Value	df	Sig.	Value	df	Sig.
ART	15.979	4	0.003	3.909	4	0.418	15.034	4	0.005	6.348	4	0.175
EXHI	6.332	4	0.176	2.322	4	0.677	17.581	4	0.001	10.704	4	0.030
PROB	11.470	4	0.022	5.252	4	0.262	4.640	4	0.326	10.738	4	0.030
DYNA	27.002	4	0.000	3.803	4	0.433	36.983	4	0.000	5.364	4	0.252
TRAD	1.714	4	0.788	4.369	4	0.358	22.708	4	0.000	24.772	4	0.000

Source: Prepared by the Authors. Notes: PERC = Perception; INPU = Input; PROC = Processing; UNDE = Understanding; ART = Use of Art; EXHI = Exhibition Based Strategy; PROB = Problematization; DYNA = Dynamic; TRAD = Traditional.

To understand the dependence relationships between each active methodology category and each learning style dimension and, in this manner, verify which variables are associated, we analyzed the adjusted standardized residuals. The adjusted standardized residuals demonstrate the characteristic patterns of each active methodology category according to each learning style dimension. Table 10 displays the learning style dimensions and the preferences for active methodology categories which presented significant associations.

Table 10
Associations between Learning Styles and Preferences for Active Methodology Categories

	PERC		PROC		UNDE	
	Sensory	Intuitive	Active	Reflective	Sequential	Global
ART	Slightly Disapprove Disapprove	Strongly Approve	Strongly Approve	Disapprove	-	-
EXHI	-	-	Strongly Approve Approve	Slightly Disapprove Disapprove	Disapprove	Indifferent
PROB	-	Strongly Approve	-	-	Slightly Disapprove Disapprove	-
DYNA	-	Strongly Approve	Strongly Approve Approve	Slightly Disapprove Disapprove	-	-
TRAD	-	-	Disapprove	Approve Strongly Approve	Strongly Approve Approve	Slightly Disapprove Indifferent

Source: Prepared by the Authors. Notes: PERC = Perception; INPU = Input; PROC = Processing; UNDE = Understanding; ART = Use of Art; EXHI = Exhibition Based Strategy; PROB = Problematization; DYNA = Dynamic; TRAD = Traditional.

According to Table 10, the learning styles of these Accounting majors are associated with preferences for certain categories of active methodologies. Students with Sensory Learning Styles prefer to work with data and experiments, like to solve problems with standardized methods, and do not care for surprises or complications (Felder & Silverman, 1988). These characteristics can explain the association with disapproval or slight disapproval of active methodologies in the Use of Art category, given that methodologies in this category work with imaginary and playful elements (Leal et al. 2017). The improvisation and creativity of the Storytelling, Dramatization and Roleplay methodologies (Nagib & Silva, 2020) can be opposed to the use of standardized methods for solving problems, and they may also take students out of their comfort zones, presenting them with surprises.

In the Intuitive Learning Style, students like innovation and do not like repetition (Felder & Silverman, 1988), which can explain its association with a preference for Active Methodologies in the Use of Art, Problematization, and Dynamic categories, because the methodologies in these categories work with creation, improvisation, problem solving and discussion (Nagib & Silva, 2020), which makes room for working with content in a creative manner, which thus provides innovation and avoids repetition in the classroom.

In the Processing dimension, the students with the Active Learning Style work well in groups, like experiments and do not do well in passive activities (Felder & Silverman, 1988), which can explain their association with a preference for the Use of Art, Exhibition Based Strategy and Dynamic categories, which have active methodologies which place students in active situations: creating and dramatizing stories and debating with colleagues and the professor (Nagib & Silva, 2020). The same characteristics of Active students also explain the lack of a preference for the traditional methodology in which students just observe information conveyed to them by the professor, which thus constitutes a passive posture (Diesel et al. 2017).

In contrast to Active students, Reflective students also work better alone and have difficulty in learning in situations in which they do not have an opportunity to think (Felder & Silverman, 1988). Thus, it is possible to understand the association of this learning style with disapproval or slight disapproval for the Use

of Art, Exhibition Based Strategy, and Dynamic categories, given that these other two categories along with the Dynamic category work with group activities (Nagib & Silva, 2020). In addition, a lack of room for reflection in these active methodologies can be related to low preferences for these categories in this learning style.

Students with the Sequential Learning Style follow a linear logical process which has a constant progression in terms of difficulty and complexity (Felder & Silverman, 1988). For the active methodology Exhibition Based Strategy and Problematization categories, student participation is intense through the presentation of seminars, dialogue, debates, and problem resolution (Nagib & Silva, 2020). In these cases, fellow students can present content and ideas in a non-linear manner, and can continue directly to more complex points, which can explain its association with disapproval or slight disapproval of the Exhibition Based Strategy and Problematization categories when we consider those with a Sequential Learning Style. In the traditional methodology, professors tend to present content in a linear manner with a constant progression in terms of difficulty and complexity, introducing concepts before discussing their applications. The way that content is presented by this methodology can explain the strong preference for it on the part of students with the Sequential Learning Style.

On the other hand, students with the Global Learning Style learn content in a non-linear manner and may do better going directly to more complex subjects (Felder & Silverman, 1988) which explains their association with a disapproval of the traditional methodology. Despite this, since this teaching methodology is the most employed in the classroom during college, students may feel used to it and feel indifferent in terms of its application in the same way that they feel indifference towards the Exhibition Based Strategy category, which uses elements of traditional expository lessons.

4.2.2 Learning Styles and Generations

The values of the χ^2 test for learning style dimensions, according to student generations are displayed in Table 11.

Table 11
χ^2: Test for Learning Styles and Generations

	GEN		
	Value	df	Sig.
PERC	1.161	1	0.281
INPU	8.891	1	0.003
PROC	8.938	1	0.003
UNDE	1.527	1	0.217

Source: Prepared by the Authors. Notes: GEN = Generations; PERC = Perception; INPU = Input; PROC = Processing; UNDE = Understanding.

According to Table 11, there is a statistically significant association, at a level of 5% (sig ≤ 0.05), between the Input and Processing Learning Style dimensions and the students' generation, which indicates that these variables are not randomly associated. First, we can see that there is a pattern of dependence between them. The other dimensions do not present a statistically significant association. Thus, we can partially reject Hypothesis H2, that is the learning styles of Accounting majors are associated with generations, except for the Perception (Sensory/Intuitive) and Understanding (Sequential/Global) dimensions.

To verify which variables are associated, we analyze the adjusted standardized residuals, and thus it is possible to understand a relationship of dependency between the Input and Processing dimensions and each student generation. We can verify that there is an association between Generation Z and the Visual and Active Learning Styles and between Generation Y and the Verbal and Reflective Learning Styles.

Individuals in Generation Z are visually involved (McCrindle & Wolfinger, 2009) and are influenced by advances in technology (Santos & Franco, 2010). These characteristics can help us understand why the Visual Learning Style is associated with this generation, given that visual students have a facility in remembering information that they have seen (Felder & Silverman, 1988) and advances in technology have provided and intensified their acquisition visually through videos and images.

Moreover, students in Generation Z exhibit frenetic behavior, being quick and agile, and they can have difficulty with traditional classroom structures (Ceretta & Froemming, 2011; Santos & Franco, 2010), which usually use traditional expository lectures as the main method of teaching in which students assume a passive posture in the construction of knowledge. Thus, this justifies the association of students from this generation with the Active Learning Style, given that active individuals do not feel an affinity with activities that require passive participation (Felder & Silverman, 1988).

Even though individuals of Generation Y are multifaceted (Comazzeto et al., 2016), they are also individualistic (Comazzeto et al., 2016) and have difficulty with critical analysis (Johnson & Romanello, 2015), which justifies their association with the Reflective Learning Style, because students with this style work better alone and learn better when they have an opportunity to think (Felder & Silverman, 1988).

The association of Generation Y with the Verbal Learning Style does not corroborate with the characteristics of individuals of this generation which have been pointed out by authors in our review of the literature, because like Generation Z they have a strong relationship with technology and have perception processes which involve more imagery and hypermedia (Santos & Franco, 2010).

4.2.3 Preferences for Active Methodologies and Generations

The values for the χ^2 test for the preferences for active methodology categories, according to the student's generation, are displayed in Table 12.

Table 12
χ^2: Test Preferences for Active Methodology Categories and Generations

	GEN		
	Value	df	Sig.
ART	4.370	4	0.358
EXHI	3.729	4	0.444
PROB	2.896	4	0.575
DYNA	19.872	4	0.001
TRAD	1.220	4	0.875

Source: Prepared by the Authors. Notes: GEN = Generations; ART = Use of Art; EXHI = Exhibition Based Strategy; PROB = Problematization; DYNA = Dynamic; TRAD = Traditional.

According to Table 12, there is a statistically significant association at a level of 5% (sig ≤ 0.05) between a preference for the Dynamic category and generations. Thus, Hypothesis H3 is partially rejected, because the generations of Accounting majors are associated with preferences for active methodologies in the Dynamic category (VGOGs, integrated panels, and debates).

To verify which generations are associated, we analyzed the adjusted standardized residuals. We found an association between Generation Y and the "Disapprove" preference and between Generation Z and the "Strongly Approve" preference in the Dynamic category.

As mentioned, individuals in Generation Y are individualists (Comazzeto et al., 2016), which could justify the association with the "Disapprove" preference for the category. In addition, this generation presented an association with the Reflective Learning Style, with a "Disapprove" or "Slightly Disapprove" preference in terms of the Dynamic category, which reinforces the lack of a preference for this category.

Individuals of Generation Z can have problems with interpersonal relationships (Santos & Franco, 2010), but despite this, according to McCrindle and Wolfinger (2009), members of this generation are broadly connected to and influenced by their peers. Thus, we can explain their strong preference for active methodologies in the Dynamic category, because they include group activities. Moreover, Generation Z presented an association with the Active Learning Style, which indicates that these students work well in groups, tend to be experimental (Felder & Silverman, 1988), and as we have seen, this style has a preference for various active methodology categories.

4.2.4 Learning Styles, Preferences for Active Methodologies and Generations

To sum up, the results of the correspondence analysis point to the existence of multiple associations among: a) the Visual, Active, Global and Intuitive Learning Styles; b) the "Disapprove" preference towards traditional methodology, and the "Strongly Approve" preference for the Problematization, Use of Art, Dynamic and Exhibition Based Strategy categories; and c) Generation Z. We can also see that there are associations between a) the Sequential Learning Style; b) the "Disapprove" preference for the Use of Art, Exhibition Based Strategy, Problematization and Dynamic categories, and the "Strongly Approve" preference for the traditional methodology; and c) Generation Y.

Thus, Hypothesis H4 has not been rejected, given that for the performed statistical tests, the learning styles, the preferences for active methodologies, and the generations of Accounting majors are associated characteristics.

The hypotheses were formulated to verify the associations between the variables, and some were partially rejected due to the fact that Felder and Soloman's ILS has four dimensions, the active methodologies have 4 categories, in addition to the traditional methodology, and two of the generations (Y and Z). Thus, we needed to test the hypotheses for each learning style dimension as well as every degree of preference in the active methodology categories for the traditional methodology and for each of the generations. Table 13 summarizes the results of the study's hypotheses.

From Table 13 we can see that according to the Learning Style dimensions of Perception, Processing and Understanding, students can present different degrees of preferences for some active methodology categories. It should also be noted that in terms of generations, these students can present different learning styles for the Input and Processing dimensions. Generations Y and Z can present distinct degrees of preference for the Dynamic category. Analyzing these three variables together, we can verify that

students can present different learning styles by generation and distinct degrees of preference for certain active methodology categories.

Table 13
Summary of the Study's Hypotheses

Summarized Hypotheses	Studied Variables		Results
H1: The Learning Styles are associated with the Active Methodologies	Four Learning Style dimensions, four Active Methodology categories, and the Traditional methodology	Partially Rejected	Rejected for the INPU dimension
			Not rejected for the PERC, PROC and UNDE dimensions
H2: The Learning Styles are associated with the Generations	Four Learning Style dimensions and two Generations	Partially Rejected	Rejected for the PERC and UNDE dimensions
			Not rejected for the INPU and PROC dimensions
H3: The Generations are associated with the Active Methodologies	Two Generations, four Active Methodology categories and the Traditional methodology	Partially Rejected	Rejected for the ART, EXHI, PROB and TRAD categories
			Not rejected for the DYNA category
H4: The Learning Styles, Active Methodologies and Generations are associated characteristics	Four Learning Style dimensions, four Active Methodology categories, the Traditional methodology and two Generations	Not Rejected	

Source: Prepared by the Authors. Notes: PERC = Perception; INPU = Input; PROC = Processing; UNDE = Understanding; ART = Use of Art; EXHI = Exhibition Based Strategy; PROB = Problematization; DYNA = Dynamic; TRAD = Traditional.

Based on Table 3 presented in Section 2.2, we can deduce that active methodologies develop the skills needed for a complete education of an accountant and the skills required by their profession. In analyzing the associated combination of learning style and active methodology variables together with Generations Z and Y, we can trace the potential profile for the development of these skills as presented in Table 14.

Table 14
Learning Styles, Active Methodologies, Generations and Skills

Association	GEN	Learning Style	Active Methodology	Skills
I	Z	Active	ART	Collaboration
		Intuitive	EXHI	Communication
		Global	DYNA	Critical Thinking
		Visual	PROB	Problem Solving
II	Y	Sequential	TRAD	Technical Skills (hard skills)

Source: Prepared by the Authors. Notes: GEN = Generations; ART = Use of Art; EXHI = Exhibition Based Strategy; DYNA = Dynamic; PROB = Problematization.

We can see from Table 14 that students from Generation Z, according to their learning styles, have a strong preference for the active methodology categories which develop collaboration, communication, critical thinking, and problem solving, in addition to technical skills. Thus, we can see that students from this generation are more willing to develop the skills of a complete education than those from Generation Y, given that the traditional methodology is more oriented towards technical skills per se, and thus does not develop the skills of a complete education.

Silva and Oliveira (2010) suggest that Higher Education Institutions rethink their desired student profile, and the market's expectations based on learning styles, reinforcing the styles that meet the proposed goals for the profile of future accountants. Thus, considering the adoption of teaching-learning strategies, it is possible to implement actions that will stimulate the less-favored learning styles, so that these students can learn independently in their own personal styles.

From this perspective, it is important for professors to stimulate the development, mainly for students in Generation Y, of the skills necessary for a complete education through the implementation of active methodology categories preferred by Intuitive, Visual, Active and Global Learning Styles, such as: seminars, problem based learning, discussed expository lessons, the flipped classroom, dramatization, debates, storytelling, roleplay, verbalization and observation groups, integrated panels and case studies.

The application of preferred active methodologies, according to the students' learning styles, can facilitate the development of the soft skills required by the market, because they can promote the greater

involvement of students in the learning process. However, it is important that professors seek mechanisms, such as, for example, the combination of applying active methodologies and educational evaluations to develop students with learning styles which do not prefer active methodologies, so that these students also develop a complete skill set.

5 Final Considerations

This study has sought to identify and analyze the associations among learning styles, preferences for active methodologies, and generations for Accounting majors. The results can provide professors with a guide to how to utilize various active methodologies according to the learning styles of different generations of students as a way to contribute to improving the teaching-learning process. Knowing the predominant learning styles of each generation makes it possible to develop teaching-learning methodologies such as active methodologies which are appropriate for the learning process for each style, stimulating students to draw closer to the learning process, which also demonstrates why some methodologies do not work with certain students. It is important to point out that, despite the identification of the active methodologies preferred by the learning styles of various generations of students, professors and Higher Education Institutions should stimulate the involvement of all students, independent of their learning styles, in the application of active methodologies to favor the development and refining of the skills required for accountants.

These results can also help diminish conflicts between professors and students in the classroom, because by knowing their preferences for various active methodology categories, professors can orient their classes to be more compatible with the learning styles of their students. However, it is important that professors are open to new educational practices, and that Higher Education Institutions invest in the continual training of professors, so that they can get to know, train, and improve their knowledge of active methodologies. Professors' contact with active methodologies should be emphasized in their training, such as, for example, *stricto sensu* graduate programs through classes in teaching methods as well as teaching internships.

This study also contributes to Higher Education Institutions, students, and society. It can provide Higher Education Institutions with guidance for how their professors should provide a complete education to their students, especially students from Generation Z, through a knowledge of their learning styles and preferred active methodologies. Through this complete education, students can develop the skills sought by the market and thus be better prepared for their professional lives, making them more efficient which thus contributes to the development of society.

This study also contributes to the literature on learning styles, active methodologies, and generations by presenting evidence concerning the identification and pair analysis of these variables. Thus, this is a relevant work, because its analysis of learning styles and active methodology preferences and generations directly makes it possible to improve the teaching-learning process in a complete education for the development of the soft skills that the market requires for future accountants.

The sample students are from various parts of the country and study at both public and private Higher Education Institutions. Thus, there can be divergences in terms of the perceptions of active methodologies, and there may be distinct interpretations of the questions in the methodological scenarios, which constitutes a limitation of this study.

In terms of future research, we recommend: a) conducting longitudinal studies to verify whether there is an association between learning styles and preferences for certain active methodologies which changes with age and if there is a pattern to these changes over time in terms of learning styles and active methodology preferences according to the student's generation; b) researching the learning styles of professors, which reflect on the way they teach, and as a result, the methodologies that they use in the classroom. Examining learning style variables in terms of student active methodology preferences can identify if there is compatibility between professors and their students or not in terms of learning styles and active methodologies. Moreover, the performances of these students can be evaluated to determine whether they are influenced by the extent of this compatibility.

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35

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NOTES

CONSENT TO USE IMAGE
Does not apply.

APPROVAL OF THE RESEARCH ETHICS COMMITTEE
Approved by the Research Ethics Committee of the Federal University of Uberlândia (CEP/UFU).
Opinion Number: 4.212.444
Date of approval: 13/08/2020

CONFLICT OF INTERESTS
Does not apply.