

Variations in Marketing and Depiction of Study Abroad Programs: A Content Analysis of Engineering Study Abroad Programs

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Abstract

Engineering companies have become more globalized over the last decades, requiring that engineers can function in transnational societies, designing products, services, and solutions that consider cultural perspectives. To correspond with this globalized workforce demand and help students develop such competencies, higher education institutions have turned to study abroad programs. These programs have taken critical steps in marketing and depicting study abroad experiences in ways that attract students. However, minimal research has given attention to the marketing and promotion of study abroad programs. In this study, using content analysis, we assessed how engineering programs are presented to students as consumers using materials from four Research 1 Universities websites. Our purpose was to identify how international engineering program websites' content depict and market study abroad programs. Our results show depending on destinations, study abroad programs are more or less likely to be engineering-driven.

Keywords: Engineering, Global Engineering, Study Abroad, International programs

Introduction

Universities across North America have adopted global education as part of their educational mandate [1]. This mandate corresponds to the emerging trend for a globalized workforce. In the United States (U.S.) specifically, study abroad has become more popular due to the emphasis placed on global citizenry by institutions and employers [2]. This demand has more than doubled students' participation in study abroad programs over the past decades [3]. Educational theorist Kolb [4] posits that people learn effectively by immersing themselves in environments that enable them to observe and reflect on their behaviors. Students who participate in international programs acquire knowledge, skills, and beliefs useful in working with people in cross-cultural settings [5]. Although research suggests study abroad is beneficial for students [6], and participation is on the increase, trends also demonstrate that students' involvement does not reflect the diverse population of U.S. students. Often, students from low socioeconomic status and historically underrepresented groups, including those in engineering, are not represented in study abroad programs [7]. This is partly due to how study abroad programs are designed and marketed, which does not promote a nuanced understanding of the value and purpose of study abroad programs.

In efforts to increase participation and expand opportunities, study abroad programs have increased across campuses and universities. Universities around the U.S. offer different types of study abroad programs to provide students with international experiences. The main differences of the programs are in length (short vs. long term), destination (Europe vs. Asia vs. Africa vs. South America, etc.), and focus of the program (service-learning vs. engineering visits vs. courses at universities, etc.). A key aspect of recruiting students into these programs is focused on several marketing strategies used by universities. These mechanisms have become part of the study abroad program's presentation and information to students through universities' websites. Study abroad programs websites present, advertise and market the programs. Students get a

glimpse of what their experience would be by visiting the web pages. However, limited studies have measured how the different kinds of programs are presented, marketed, and framed. Hence, the purpose of this study was to identify the possible factors used by universities in the marketing and promotion of study abroad programs, including the travel destinations for engineering students. More specifically, we answered the research question: how do international engineering program websites' content depict and market study abroad programs?

Relevant Literature

The engineering field emphasizes global competency skills to prepare engineering graduates for international practice [8]. Engineering companies bear this pressure. Over the last decades, engineering companies have become more globalized, requiring that engineers can understand the complexities of working with people in multiple countries and from multiple backgrounds [9], be aware of societal and global issues, and design products, services, and solutions that consider cultural perspectives [10]. Hence, the development of engineering students with global engineering competency (GEC) has become more critical for engineering programs [11]–[13]. GEC development has been studied in engineering education research from the perception of developing the ability to work in international and multicultural environments [14]–[16]. One way that universities are developing GEC is through study abroad programs. Study abroad programs do not only develop GEC but also experiential learning – a type of learning proven to be effective – that has also been proven to promote other competencies that are required in engineering (e.g., cultural awareness, holistic perspectives, self-reflection, transformative learning) [17]. Therefore, study abroad is a transformative experience for students [18] beyond GEC that is necessary for solving complex contemporary problems.

Johri and Jesiek [19] present a good overview of the different types of study abroad programs that promote GEC and the ensued benefits for students. However, despite the benefits gained from study abroad by students, employers, and institutions at large, there have also been several pushbacks on study abroad programs due to several reasons. First, programs are expensive and not accessible [20]. Second, participation rates of historically underrepresented students remain very low [7]. Third, students find it difficult to acclimate to new cultures [21], leading them to force their own cultures on host destinations. Fourth, in some instances, students might develop a “white savior” perspective [22]. Fifth, programs can have a negative impact on the local communities if not designed intentionally [23]. Thus, to improve conditions, national and institutional efforts must be intentional to develop programs that enhance students' cultural sensitivity and increase participation. These include raising awareness among students who have challenges in understanding the value and purpose of the international experience from institutions [24], [25]. As such, institutions have become proactive and robust in making programs accessible through promotion and marketing activities.

Marketing of the study abroad programs have, however, become increasingly commercial. This, in part, further challenges parents and students who are yet to understand the benefits of international education programs [9]. Critics point out that education abroad has become more entrepreneurial and consumer-oriented [26]. With the consumer mentality, universities generate revenue from these programs [27] and market study abroad programs appealing to their consumers' gaze (students) that fit the tourist model. In some cases, students often apply their consumer lens to assess the educational experience [26]. Notably, digital platforms have

increased the use of visual imagery by higher education institutions on websites. Websites and digital images are crucial to institutions' marketing and communication initiatives [28]. Institutional websites provide students with a glance of experiences on campuses and serve as communication outlets for institutions. The visual representation gives meaning to the expected experiences of students. As a source of conveying the university's global outreach efforts, websites fall into marketing the experience abroad with images of exotic venues [29] for the consumer's (student's) gaze [26], that promotes transformation [18] and influences perceptions and behaviors of students [30].

Theoretical Lens

This study is framed in the tourist gaze conceptual lens. Coined by John Urry [31], tourist gaze uses a critical lens to describe travel experiences' visual nature among tourists. Primarily, the tourist gaze explores the expectations and motivations that encourage individuals to travel to different destinations in the quest of experiencing cultures, landmarks, heritage, etc. Early discourse on the rationale for international travel experiences looked at motivation from Maslow [32] and focused on people's psychological needs. Dann [33] later identified that people who travel to places are motivated either by a pull or a push towards a particular experience. The pull factors are usually external, while the push factors are attributed to social and psychological internal factors. While study abroad is not volunteer tourism, the program materials and marketing tend to be similar. Using the tourist gaze lens to explore international engineering programs, websites position us to look at the content available to students and factors present in marketing and advertising of study abroad programs distinctive to consumers' gaze, in this case, the students.

Visual representation of travel destinations can cater to the gaze of individuals to spark interest. The distinctiveness of the visuals as part of tourists' experiences is a significant cornerstone of the tourist gaze [31]. The manner in which different programs are marketed and framed fits the motivational scheme of the tourist gaze. The encounter of the tourist is socially constructed in the search for authenticity [31]. Accordingly, the views of those who travel can be manipulated "so that the gaze falls upon what the gazer expects to see" [34, p. 11]. The framing used by universities in marketing is the same as framing used in marketing and communication. Urry [31] argued that real-life experiences are hidden away so that tourists gaze upon them in ways they expect to see these places. How subjects are framed in advertising of places becomes the distinctive visual expectation of people when they travel. In study abroad programs, what is presented as program marketing materials (websites) becomes what is expected to fill experiences abroad. For example, a brochure of Paris, France with the Eiffel Tower brings a visitor to expect to see the Eiffel Tower once they visit Paris. The presentation of study abroad materials enable pre-established notions [31] and motivates the consciousness of participants [35]. Hence, we use the tourist gaze in this study to analyze images and text from institutions' websites to determine how engineering study abroad programs are presented to students as consumers to understand how the international experience/study abroad destinations are presented and promoted.

Methods

We employed content analysis as a qualitative research approach to undertake this study. Content analysis provides researchers the advantage of studying documents and artifacts to examine patterns that are available in a systematic or replicable manner [36]. Thus, we were positioned to explore the websites of engineering programs at major research universities (MRUs) in the U.S. with a focus on engineering through content analysis. As we explored institutional websites, the non-invasive nature of content analysis was beneficial. In addition, it was time-efficient and effective in allowing us to compare and contrast across programs to understand better how study abroad programs are presented and marketed to students and stakeholders at large.

Data Collection

Data for this study were gathered from the websites of four Major Research Universities (MRUs) that are highly ranked institutions across diverse regions in the U.S. All four universities are predominantly white institutions (PWIs) and were intentionally selected based on similarities in their engineering programs. In addition, the institutions have engineering programs with a strong emphasis on global education/promoting international experience. Table 1 briefly describes each institution, location, and undergraduate engineering enrollment as of Fall 2020.

Table 1: University's location and UG engineering student enrollment

University (Pseudonym)	Full-time Engineering Students	Location/Region
MRU1	10,046	Midwest
MRU2	9,358	Mid-Atlantic
MRU3	9,657	Southeast
MRU4	8,280	Midwest

We searched each institution's website, reviewed the engineering program's page, and explored the study abroad materials posted as available to the public or students. As we explored the websites, we focused on the marketing and promotional content, mainly pictures, and text, to make sense of the materials, examining the trends and patterns [37]. The data were extracted manually from the websites by members of the research team. We took screenshots of the pages and downloaded some images and content when needed or applicable.

Data analysis

Using our research question as a parameter for our analysis, we initially identified two categories (images and texts) for the study. Then, we used the categories to retrieve relevant images and texts from the institutions' engineering program study abroad websites. We retrieved texts and images from web pages of international engineering programs separately and grouped them into categories according to themes. To do this, we applied the thematic analysis approach. According to Robson and McCartan [38], thematic analysis is a qualitative approach that allows data to emerge from patterns after open coding. As themes were formed, we identified seven sub-categories for images and six sub-categories for text as the units of analysis. Details of each category and subcategories are presented in Tables 2 and 3.

Table 2: Categories for Images

Image	Description
Animal	Photo of animals
Buildings	Photo of structures, buildings, campuses, bridges, aerial views
Selfies	Photo, a self-portrait taken at arm's length
Nature	Trees, rivers, mountains, outdoor spaces
Low SES/	Torn up clothing, no shoes, poverty-stricken/exhibiting low socio-economic status
Engineering/Engineer	Photos in a lab, wearing hard hats, in a factory, etc
School Flag/Paraphernalia	Photos of people holding the flag of the university/wearing recognizable school paraphernalia

Table 3: Categories for Texts

Text	Description
Culture/Cultural	Mention of culture/cultural
Explore	Mention of the word Explore
Language	Use of a foreign language (i.e., French, Spanish, German) or mention of the word language
Engineering/Engineer	Comment of the word Engineering/Engineer
Global/International	Statement of Global/International
Jobs/Employment	Mentioned Job, Employment, and or Employers

During the analysis, we conducted two cycles of line-by-line open coding [39] to identify codes that emerged from the data and grouped them into themes based on the meaning expressed in the data. First, we used Excel for the first round of coding during our analysis and eventually transferred the results into charts. Then, based on the data patterns, we conducted a second-round coding of each chart, developed thematic categories using units of codes that expressed related meaning and compared the derived codes from both rounds of coding. Finally, given the focus of the study, both sets of data (text and images) were combined during the second round of coding for a holistic analysis of program websites to detect the similitudes as part of developing the larger themes based on the meaning of the emergent themes during the first round of coding.

Overall, the websites' contents were analyzed after putting them into two categories: text and images and their accompanying sub-categories. Simultaneously, the travel destinations were grouped by region to understand how engineering study abroad programs are depicted and marketed on their websites. As universities strive to build global competent programs, observing text and photographs on universities' websites is a significant way to understand how programs at different universities are marketing their programs and influencing the expectations of students to participate [30]. The travel destinations used to subsequently analyze the geographical regions were Latin America, Asia, Europe, Africa.

Quality of the Research

We recognize that there are several limitations of this study. Data for the study were gathered from research-focused PWIs, which may not be representative of study abroad programs at other types of institutions. Further, the study utilized one source of data collection based on contents, specifically images and texts available on the institutions' websites. As such, we also recognize that the study outcome could be different had we directly interviewed students. Hence, we

cautioned against the generalization of the findings. However, transferability of the research is established through the quality of the research procedures to mitigate the study’s limitations. The study’s research design (content analysis) is credible; it was discussed and agreed upon by several researchers. We conducted two rounds of coding during the analysis, and several researchers reviewed the categories and the examples to make sure the data made sense. Moreover, all research team members were involved in the outcome of the research and agreed upon the results following a series of deliberations.

Results

Based on our analysis, we found a total of 515 images and 479 texts. We present the images and texts across their respective subcategories and differentiate them according to the various institutions. Also, we show the images and texts in their separate categories according to travel destinations during the analysis. Further, we thematized the results based on meaning in the thematic categories section.

Images

The categories of images include *animals, buildings, selfies, nature, low SES, engineers/engineering, and school flag/paraphernalia*. Tables 4 and 5 present categories of images by institutions and regions, respectively.

Table 4: Categories of Images by Institutions

Images	MRU1	MRU2	MRU3	MRU4
Animals	6.5%	13.5%	5.9%	0%
Buildings	58.6%	19.1%	40%	37.4%
Selfies	0.7%	4.1%	1.2%	10.1%
Nature	16%	14%	17.6%	6.1%
Low SES	6.6%	19.7%	10.6%	19.2%
Engineers/Engineering	10.9%	7.8%	16.5%	26.1%
School Flag/Paraphernalia	0.7%	21.8%	8.2%	1.0%
Total	100%	100%	100%	100%

In Table 4, the top three categories of images across all institutions include buildings, followed by low SES, nature, and engineers/engineering. On the other hand, we found that the school flag/paraphernalia, animals, and selfies represented the lowest three categories. The top categories show that engineering study abroad programs are more focused on engineers’ definitive work via images of structures, bridges, campus infrastructures and designs, laboratories, factories, communal interventions through community projects, and the sustainability of nature, etc.). While the bottom categories do not present a significant attachment to engineering, they account for the pride of students’ experience from visiting places, getting to experience the heritage of host countries, and the institution’s prestige. When separated, some institutions produced a higher number of images in some categories than others. For example, MRU1 produced the highest number of images in the buildings category, while their image output in the selfies and school flag/paraphernalia categories is the least. Similarly, MRU2 produced the single highest number of images in the school flag/paraphernalia and low SES categories compared to their lowest in the selfies category.

Table 5: Categories of Images by Regions

Images	Latin America	Asia	Europe	Africa
Animals	5.5%	16.1%	1.2%	9.9%
Buildings	28.4%	38.8%	56.1%	6.6%
Selfies	0.9%	4.3%	5.2%	4.4%
Nature	25.7%	12.8%	6.9%	13.1%
Low SES	15.6%	13.1%	0%	50.6%
Engineers/Engineering	14.7%	8.6%	15.6%	8.8%
School Flag/Paraphernalia	9.2%	6.3%	15.0%	6.6%
Total	100%	100%	100%	100%

Since the images were based on various travel destinations, we also analyzed the images by travel regions. We measured them to determine the focus of programs by each destination and to understand how photos depict each location. Hence, Table 5 summarizes the analysis of images by the four most travel regions across the institutions that we studied (Latin America, Asia, Europe, and Africa). The results show that most of the photos were from Europe, followed by Asia, Latin America, and Africa. In measuring the categories across all regions, we found the buildings category as the highest number of images; however, Europe produced the highest while Africa was the least in that category. Similarly, Europe produced the highest compared to Asia, Latin America, and Africa in the engineers/engineering category. In the nature category, Latin America produced the highest number of images compared to Asia, Europe, and Africa. While Africa produced the highest number of photos in the low SES category compared to Latin America, Asia, and Europe, Asia produced the highest in the animal category compared to Africa, Latin America, and Europe.

Texts

Text represents words and related words constantly appearing on the web pages of websites in the study. The text categories include *culture/cultural*, *explore*, *language*, *engineers/engineering*, *global/international*, and *job/employment/employers*. Tables 6 and 7 respectively present the categories of texts by institutions and regions.

Table 6: Categories of Texts by Institutions

Text Description	MRU1	MRU2	MRU3	MRU4
Culture/Cultural	19.1%	26%	24.2%	9.4%
Explore	2.1%	1%	2.0%	3.2%
Language (Spanish, French, etc.)	12.7%	7.7%	14.2%	4.2%
Engineering/Engineer	49.6%	40.1%	47.5%	25.3%
Global/International	14.9%	20%	12.1%	56.8%
Job/Employment/employers	1.6%	5.2	0%	1.1%
Total	100%	100%	100%	100%

Table 6 shows the engineering/engineer category with the highest number of texts across all institutions, followed by global/international, and culture/cultural. Job/employment/employers produced the lowest number of texts after language and explore. Our results demonstrate that institutions/programs poorly described the importance of study abroad Jobs/employment/employers in the bottom categories. Similarly, the programs did not provide sufficient information on the study abroad experience's exploratory value as a critical component

of their learning beyond domestic classrooms. Even though the emphasis placed on language is not comparable to the top three categories, programs still provided information that accounts for their interest in promoting languages of host destinations on their websites. Also, we analyzed the texts according to the different institutions separately. We found that the highest number of texts per category was found at MRU1 in the engineering/engineer category, followed by MRU4 in the global/international category. The least texts per category were found at MRU3 for *job/employment/employers*.

Table 7: Categories of Text by Regions

Text Description	Latin America	Asia	Europe	Africa
Culture/Cultural	14.4%	22.2%	20.6%	20%
Explore	2.9%	1.8%	2%	1.7%
Language	13.5%	10.2%	11.3%	1.7%
Engineering/Engineer	46.1%	49.7%	33%	39.0%
Global/International	21.2%	13.8%	31.8%	36%
Job/Employment	1.9%	2.3%	1.3%	1.6%
Total	100%	100%	100%	100%

While the results demonstrate that the emphasis of study programs at different institutions slightly differs, the results at the respective institutions conform with the overall patterns that institutions were more focused on promoting global engineering competencies but fell short of aligning that to employers on their webpage. In Table 7, the results show that most of the texts in our analysis were associated with Asia, followed by Europe, Latin America, and Africa. In measuring the categories across all regions, we found that programs are described differently according to the text description per location. Additionally, the programs' focus on each location is realized according to the descriptive codes of interest. Programs to Asia and Europe have a strong representation of text across all categories compared to Latin America and Africa.

Thematic Categories

To make meaning of these results from our analysis, we thematized the expressions of the images and texts and grouped them into the four categories in our results. These results, including academic, service-learning, engineering, and low socioeconomic status, conveyed the variations in how engineering study abroad programs depict and market themselves to students and stakeholders at large.

Academic

Academic refers to the scholarly nature of the program with a focus on teaching, learning, and attending classes while abroad. Images and texts in this category range from universities' buildings, classroom settings, teaching, and learning, or campus spaces. An example of an image in this category showed a faculty/program leader with students in a classroom at a visiting institution in the country abroad. A text in this category described an institution at the travel destination as "proven and recognized with first-rate teaching, modern facilities, and excellent services." Another text mentioned, "students will learn basic engineering design and practice in the second-largest economy world" as part of the program details. Across the various regions, we found that images and texts from Europe and Asia were more academic-focused. For example, a program to Europe highlighted; "this program is designed to introduce students to foundational

concepts and career pathways in the areas of kinesiology and engineering.” Another program to a destination in Asia describes a visiting institution: “if you want to study engineering in [BLINDED COUNTRY], [BLINDED UNIVERSITY] will be the best destination, with several programs highly ranked worldwide.”

Service Learning

Programs with a service-learning focus were tied to community projects in host communities abroad. Service-Learning includes activities or approaches of students involved in community projects while abroad as part of the learning experience. This category included building bridges, wells, and other water and climate projects. We found this focus across all institutions; however, the focus was only on Africa and Latin America and one country in Asia, Nepal. For example, a program with travel to a country in Africa involved students building a primary school for girls. Another program to a destination in Africa indicated, “The [BLINDED] program furthers the university’s comprehensive efforts to encourage our students to think globally about engineering challenges and global career pathways by working with local partners on community-based and sustainable programming.” In the context of Latin America, a program focused on water and climate projects indicating “service-learning allows you to learn about yourself and the community. Service placements are based on community needs, students’ interest, and Spanish language level.” Similarly, an image on a program’s webpage showed students working on a well to supply water to a visiting community in a Latin American country.

Engineering Work

Engineering work encompasses images or text about the discipline of engineering. This ranges from design to structures and recognizable items known in the engineering field and includes individuals (i.e., students) in computer labs wearing hard hats and/or in the field wearing reflective vests. Buildings and architecture were also a huge part of exhibiting engineering across platforms. In regards to regions, the image distinctions were quite noticeable with programs going to various destinations (i.e., Europe and Asia than Latin America and Africa). In contrast to Europe, Asian countries had more images depicting technology, innovation, and big brand names. One program website highlighted a university in an Asian country as having “nurtured numerous high impact alumni, including 7 prime ministers and many CEOs for household names such as Sony, Honda, Toshiba, Samsung, Nintendo.” Programs to Europe and Asia depicted students posing with prominent and touristy structures or architecture like the Sydney Opera House, London Bridge, Tokyo Skytree, and the Great Wall of China; whereas, images for Latin America and Africa did not have a stereotypical reflection of engineering. For example, an image of a program to Africa shows smiling engineering students in the company of local children with the text “collaboration in engineering across the globe.” Images for programs to Latin America predominantly focused on students interacting with nature (i.e., hiking, mountains, hilltops, and green lush spaces) wearing their visible school paraphernalia.

Low SES

Low socioeconomic status (SES) in images ranged from torn-up clothing to no shoes and other exhibitions of poverty. Along with images, program websites mentioned words like “poor,” “poverty-stricken,” and/or “lack of basic needs.” Low SES came across for study abroad

programs to Latin America and Africa. Images with children were more likely to be present in the images for these regions across all four intuitions. A major contrast with photos of children is that they were not present in images to European destinations. Locations in Latin America and Africa featured several of these photos showing children exhibiting low socioeconomic conditions. Some of the other images in this category were people sitting on red dirt roads, children standing on a wall with torn-up clothing, and children playing in the dirt/dust. In the text category, one program to a country in Africa mentioned: “in rural communities in [BLINDED COUNTRY], eradicating poverty and pursuing prosperity are highly correlated with steady electricity.” Similarly, a text on the website of a program to a Latin American country indicated: “for many people in BC, water is not treated ... The project develops and implements a continuous flow solar UV disinfection system for potable water production in the community.”

Discussion and Conclusion

The purpose of this study was to identify the variations of marketing and promotion strategies used by universities for engineering study abroad programs. In our results, we found academic, service learning, engineering work, and low socioeconomic status as the medium through which engineering study abroad programs are depicted and marketed at various institutions. We measured these categories to determine the main areas of interest highlighted by engineering study abroad programs and to determine the differences of interests among the respective institutions.

The findings of this study contribute to the literature on study abroad by suggesting a more intentional way to convey messages through the content on institutions’ websites and their marketing strategies. The manner in which people and places including program locations are presented to the public is critical in availing the nature of programs; scholarship on images and symbols suggests that websites help provide meaning that informs students’ understandings [30]. In providing meaning, study abroad programs websites described the study abroad experience in a way that appeals to students differently. The results demonstrate that the emphasis of the study abroad programs is on promoting engineering skills, intercultural skills, and global competencies. Across universities, the results were similar based on region. The differences were mostly based on diversity in programs. The results also show that the programs depict each location differently, meaning that students should expect to have different experiences based on where they travel. Programs to Europe and Asia were demonstrated as the highlight of the engineering experience, whereas Latin America and Africa are respectively showcased by images that focus on low SES and natural features.

Overall, our results suggest that information available to students and stakeholders via programs’ websites are stereotypical based on the program location. Students are often faced with a difficult task in not only deciding location and type of program or length of stay but also what type of experience fits their interest. In regions with low socioeconomic status, there were not a lot of opportunities for culture/cultural excursions. Although some program web pages had videos of students participating in dance experiences in Latin America, the vast majority focused on service. Students interested in programs to Europe and Asia were presented with a variety of options excluding service. The absence of poor or poverty-stricken images played to the narrative of certain regions being superior while others are helpless. Hence, institutions are to be explicit in providing students with a clearer understanding of the value they gain from

participating in different study abroad programs [25]. In marketing, universities should be more vigilant in selecting images that are not stereotypical or paint certain regions as helpless. There should be equity in the types of programs offered at various locations. This would be essential to improving participation and developing a critical mass of competent engineers from diverse backgrounds, given the lack of equal representation in study abroad programs.

Future Work

We intend to continue this work in several ways. First, we plan to expand on the types of institutions. This will include a combination of non-PWIs with PWIs, high-research activity, low-research activity, and teaching-focused institutions. We believe including other types of institutions increases our sample range and will enrich our study by enabling us to understand how these results might be different and/or similar across different types of institutions. Second, we intend to expand our sources of data to include students as participants in our study. We believe this is important for the triangulation of our data. Hence, we intend to interview students to understand how they perceive the study abroad program's marketing materials.

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