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Learning to Draw is Learning to See: A Comprehensive Review of Art and Design Practices in Higher Education

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ABSTRACT
Practises related to learning to draw and learning to see are valuable knowledge in higher education. The drawing process can lead to improvements in visual perception, cognitive skills, and creative thinking abilities. This research presents a case for the integration of drawing practises in higher education, arguing that it can enhance students' ability to think creatively and visually, both in academic and professional pursuits. Through a comprehensive contextual analysis of the literature review from 2019 until 2023, this research examines the evidence that drawing is produced from observation and considers the wide potential implications of learning in higher education. As a result, a conceptual model is presented to explain the relationship between drawing elements and learning to see. This research concludes with a discussion of the potential benefits of incorporating drawing practises into higher education and the challenges and opportunities involved. Overall, this research contributes to supporting comprehensive art and design practises for learning to draw and learning to see and highlights the potential value of drawing in higher education.

Keywords: *Art and Design, Drawing, Higher Education, Teaching and Learning, Conceptual Model*

1. INTRODUCTION

The value of learning to draw in higher education has recently been recognized and emphasized in art education (Radianti et al., 2020). Although drawing has historically been connected to the visual arts, newer research indicates that it has broader uses in the academic and professional sectors (Leavy, 2020). Drawing helps improve visual perception, cognitive ability, and creative thinking. It is not simply a skill, but a way of seeing (Fleury et al., 2020). In the digital age, where visual communication has become an essential part of many areas, like science, engineering, medicine, and architecture, to mention a few, the value of visual literacy has become more and more clear (Brumberger, 2019), but due to the tendency of conventional higher education curricula to place more emphasis on verbal and written communication skills than on visual ones, students are frequently ill-equipped to successfully navigate the visual environment of the modern world (Broeckelman-Post et al., 2023). To address this gap in visual literacy, drawing might be quite important. Drawing teaches you to study the world more carefully, spot connections and patterns, and express ideas more clearly. It's not only about making art.

Learning to draw is like learning to see, and it can aid children in improving their communication, analytical, and problem-solving abilities (Winner et al., 2020).

Drawing instruction has been linked to gains in visual perception, cognitive function, and creative thinking, according to a growing body of research (Chamberlain et al., 2021). Drawing, for instance, has been proven to improve spatial reasoning, detail-orientedness, and pattern recognition. Drawing encourages experimenting, exploration, and taking risks, all of which are good for creativity (Cremin & Chappell, 2021). Drawing exercises can promote a more holistic learning style that combines verbal and visual communication in higher education programs (Miranda et al., 2021). Drawing can be incorporated into a variety of academic topics, including the social sciences and humanities as well as STEM fields (Ingeborgrud et al., 2020). Students can improve their capacity for creative and visual thinking in both their academic and professional endeavors by learning to draw (Gholam, 2019). The possible advantages of including drawing exercises in higher education and looking into the data supporting the idea that learning to draw is similar to learning to see The inclusion of drawing skills in higher education and highlighting the possible difficulties and opportunities involved, building on a thorough literature analysis, In the end, this study highlights the potential value of drawing in higher education and adds to the expanding body of data that backs up the assertion that learning to draw is similar to learning to see (Winstone & Carless, 2019).

2. PROBLEMS IN LEARNING TO DRAW AND LEARNING TO SEE

There are potential advantages to bringing drawing skills into higher education, but there are also certain difficulties and issues that need to be described and explained. When learning to draw and perceive, students run into several issues. A lack of core knowledge is essential to gaining a comprehensive understanding of drawing concepts like perspective, proportion, and shading. Lacking these abilities, students could find it difficult to create precise and compelling drawings (Ching, 2019). Limited exposure to a variety of styles and techniques: students' exposure to a variety of drawing styles and methods may be restricted. This may stifle their imagination and make it challenging for them to create a distinctive style (Shaw, 2019). Drawing involves the capacity to convert three-dimensional things into two-dimensional pictures, which can be challenging. This can be difficult, especially for pupils who aren't accustomed to drawing (Mills & Brown, 2022). Fear of making mistakes in learning to draw causes students to frequently struggle with this issue. This anxiety can be a major impediment to learning because it discourages students from taking risks and experimenting with new approaches (Feigenbaum, 2021).

Drawing requires the use of supplies such as paper, pencils, and other instruments, which are in short supply. Lack of access to these alternative materials, such as new technology or mediums, may make it difficult for students to hone their talents (Suleiman et al., 2020). Students need a structured curriculum that places an emphasis on fundamental abilities and promotes exploration and creativity to overcome these difficulties (Reimers & Chung, 2019). Students can build their own distinctive style by having access to a variety of drawing methods and styles. Additionally, it's critical to provide a positive, accepting climate in the classroom that inspires students to take risks and learn from their errors. Lastly, making sure that students have access to the tools they require, such as supplies and instructional support, can aid in the development of their drawing and visual perception abilities and confidence.

3. LITERATURE REVIEW

Through a comprehensive contextual analysis of the literature review from 2019 until 2023, this research examines the evidence that drawing is produced from observation and considers the wide potential implications of learning in higher education, such as visual perception in drawing, cognitive skills in drawing, creative thinking abilities in drawing, the potential applications of drawing skills in

art and design fields, the integration of drawing techniques in higher education, and observational drawing.

3.1 Visual Perception in Drawing

Drawing relies heavily on visual perception since it enables artists to accurately perceive and depict their surroundings. An artist can utilise visual perception to discern an object's key characteristics, such as its shape, form, texture, and colour, and then use this knowledge to create a drawing that faithfully depicts the object (Hertzmann, 2020). In the first phases of drawing, when a student must carefully analyze the topic and make a rough drawing or outline, visual perception is crucial. This calls on the capacity to see and accurately represent details, as well as the capacity to accurately understand the proportions and relationships between various aspects of the subject (Vayansky & Kumar, 2020).

Regular practise and observation are two ways that artists might improve their abilities to perceive the world visually. This could entail routinely drawing from life or looking at the works of other artists to learn how they perceive the world (Chisolm et al., 2021). A viewfinder or grid can help with proportion and composition, and shading and perspective techniques can be used to provide the impression of depth and dimension (Mela, 2022). Artists may also use other tools and techniques to improve their visual sense. Visual perception is a fundamental talent for artists since it enables them to accurately perceive and depict their surroundings and produce realistic and evocative artwork (Barber, 2021).

3.2 Cognitive Skills in Drawing

Drawing is a complicated cognitive skill that requires several brain processes, including perception, attention, memory, and problem-solving as cognitive abilities. Drawing necessitates the precise observation of visual stimuli such as lines, forms, and textures as seen by the eyes. This requires the ability to distinguish between diverse visual inputs, establish spatial relationships between them, and organise them into meaningful patterns (Stanyer, 2020). The ability to perceive and manipulate spatial relationships between objects is referred to as "spatial reasoning". Spatial reasoning is essential in drawing to accurately depict the three-dimensional environment on a two-dimensional surface. The ability to sense depth, scale, and proportion is required (Oti & Crilly, 2021).

Drawing necessitates both short-term and long-term memory. When drawing, short-term memory is used to recall visual information, whereas long-term memory is used to recall previous visual experiences and subject-matter knowledge (Du Plessis & Maree, 2019). The students must develop ways to depict complicated objects or concepts in a visually clear and effective manner, drawing frequently entails problem-solving (Jonassen & Carr, 2020). This necessitates the ability to assess and understand visual data, recognise problems, and come up with alternate solutions (Oliveira et al., 2021).

Drawing necessitates persistent concentration and focus on the subject at hand. This entails being able to filter out distractions while maintaining a high level of concentration. Drawing is a complicated cognitive activity that requires numerous mental processes. Practicing these abilities can improve one's ability to make art and express thoughts visually (Valiyev & Ibrahimova, 2021).

3.3 Creative Thinking Abilities in Drawing

Drawing is a highly creative endeavour that involves diverse creative reasoning skills. Imagination is the capacity to form mental images of non-existent or unseen objects (Crawford, 2022). Drawing requires the artist to create anything from scratch, which entails visualising the image in their mind before committing it to paper (Ammon, 2019). Originality refers to the capacity to generate original

and distinctive ideas. Drawing necessitates that the artist makes something that is not an exact replica of anything else but rather an original work (Hills & Bird, 2019).

Flexibility is the capacity to examine alternative approaches to an issue and to think creatively outside of the box. To get the desired result in a drawing, the artist must be open-minded and willing to experiment with various concepts and techniques. Synthesis is the capacity to blend diverse ideas or thoughts to produce something new. Drawing frequently entails combining multiple visual elements to create a unified and coherent image (Ching, 2023).

Drawing demands problem-solving abilities to overcome obstacles such as how to effectively represent complicated objects or convey a specific mood or message (Munir, 2022). To find a solution, the artist must think critically and creatively. Risk-taking entails a willingness to take chances and experiment with novel situations. Drawing demands the artist take risks, experiment with various techniques and materials, and be willing to make mistakes to realise their creative vision. Developing these creative thinking skills can improve a person's ability to produce expressive and original drawings that reflect their unique perspective and vision (Park & Kim, 2021).

3.4 The Potential Applications of Drawing Skills in Art and Design Fields

Drawing proficiency is essential for careers in higher education in areas such as fine art, graphic design, product design, fashion design, illustration, and architecture. In higher education's fine arts programmes, drawing is a vital ability (Fava, 2020). It is used to instruct students in observing and documenting their surroundings, creating their own artistic style, and expressing their views graphically. Live model sessions, still-life drawings, and landscape drawings are frequent features of drawing classes. Higher education illustration programmes teach students how to develop visual thoughts and narratives using drawing techniques (Mukunda et al., 2019). Students learn how to design characters, build dynamic compositions, and convey emotion and tone in their pictures through drawing.

Higher education graphic design courses teach students how to develop their ideas visually with drawing techniques (Kędra & Žakevičiūtė 2019). Students are taught how to draw to build their design thoughts, develop their sketches and mock-ups, and improve their typography. Drawing abilities are used to teach students how to generate sketches, prototypes, and technical drawings in product design programmes in higher education (Thurlow et al., 2019). Drawing is a skill that is taught to students to help them develop their creative thoughts, communicate their ideas to others, and produce intricate manufacturing blueprints.

In higher education fashion design programs, drawing abilities are utilised to teach students how to generate fashion sketches, build patterns, and design apparel (Gam & Banning, 2020). Students learn to create dynamic postures for models, comprehend human proportions, and develop their fashion design thoughts through drawing. In architectural programmes in higher education, drawing is an essential skill. Students learn how to make architectural drawings, floor plans, elevations, and section drawings using this method (Eren & Yılmaz, 2022). Students are taught how to make perspective drawings, renderings, and visual representations of their architectural plans using drawing. In general, drawing abilities are crucial in higher education's art and design professions. They help kids communicate their thoughts visually, foster their creativity, and encourage them to observe and record the world around them.

3.5 The Integration of Drawing Techniques in Higher Education

Integration of drawing techniques in higher education can be advantageous for students in a variety of disciplines. Drawing is a powerful tool for visual communication, and integrating drawing methods in higher education can assist students in communicating complicated ideas and concepts in a visual and understandable manner (Wu & Rau 2019). Students in other creative and design fields, such as physics, engineering, and architecture, will find this particularly useful. Drawing requires a high level of observation and attention to detail, and incorporating drawing techniques into higher education can assist students in developing their observational skills (Reid et al., 2019). This can be especially beneficial for students in subjects including medicine, biology, and the natural sciences, in which precise observation and interpretation of visual data are crucial.

Drawing is a highly creative activity that necessitates a variety of creative thinking skills, including imagination, inventiveness, and problem-solving (Childs et al., 2022). Integrating drawing techniques into higher education can assist students in developing and enhancing their creative thinking skills, resulting in more inventive and influential work in a variety of sectors. Drawing is an adaptable and accessible instrument that may be utilised in a variety of subjects and vocations (Fiebrink, 2019). Integration of drawing techniques in higher education helps foster interdisciplinary collaboration and communication since students from other disciplines can use drawing as a common language to investigate and explain complicated concepts.

Drawing involves perfect hand-eye coordination and control as a fine motor skill (Sonar et al., 2022). The incorporation of sketching techniques in higher education can assist students in enhancing their fine motor abilities, which can be useful in sectors such as surgery, dentistry, and other areas of healthcare. Integration of drawing techniques into higher education can have numerous benefits for students in a variety of disciplines. By increasing their drawing talents, students can increase their visual communication skills, observational ability, creative thinking, multidisciplinary teamwork, and fine motor skills, leading to more successful and influential work in their respective disciplines.

3.6 Observational Drawing

Drawing from life or from close study of the subject is part of the observational drawing technique (Reavey, 2020). With this method, the subject is extensively examined, and its details are meticulously recorded by careful observation and measurement. Observational drawing is a crucial ability in many areas of art and design because it enables practitioners to faithfully capture their surroundings (Shapiro et al., 2020). It is frequently used to gain a deeper grasp of the subject and produce more realistic and accurate portrayals of it in fine art, illustration, product design, fashion design, and architecture.

An artist must focus on the subject's finer features, such as its form, texture, and colour, to create an observational drawing (Daniel & Mason, 2020). Artists must precisely capture these elements in their drawing while also considering the subject's lighting and perspective. While it might be difficult to translate all the subject's details into paper, this approach calls for patience and practise.

Observational drawing has advantages that go beyond just improving one's technical abilities (Cross, 2023). By using this method, artists can forge closer ties to their surroundings and become more sensitive to the complexity and beauty of the environment. While students must figure out how to faithfully depict the subject in their drawing, it can also aid artists in developing their creativity and problem-solving skills. As a result, observational drawing is an important ability for designers and artists since it enables them to gain a deeper grasp of their subject and produce more accurate and

realistic renditions of it. By using this method, artists can enhance their creative and problem-solving skills as well as their sense of connection to the world around them.

4. RESEARCH METHODOLOGY: CONTEXTUAL ANALYSIS

In this research, the researcher employed a contextual analysis method to investigate the practices of art and design education in higher education institutions. The primary objective was to explore the relationship between learning to draw and learning to see, specifically focusing on the elements of drawing and their impact on visual perception. To achieve this, a comprehensive literature review was conducted, encompassing relevant academic works published between 2019 and 2023. The literature review allowed for the identification and synthesis of key insights and trends in art and design pedagogy, as well as the exploration of how drawing elements contribute to the development of visual perception skills.

The research methodology followed two main steps. Firstly, an exhaustive search was conducted to gather academic articles, journals, books, and conference proceedings relevant to art and design education and the process of learning to draw and see. The selection criteria included relevance, quality, and recency of publications. After gathering the literature, a systematic review approach was applied to extract pertinent information and insights from the selected sources. The process involved critically analyzing and synthesizing the data to identify recurring themes and patterns in the relationship between drawing elements and the acquisition of visual perception skills.

The conceptual model emerged as the outcome of this analysis, representing a visual representation of the intricate connections between different drawing elements and their influence on the development of learning to see. The model provides a holistic view of how art and design practices in higher education contribute to enhancing visual perception, underscoring the importance of learning to draw as a foundational skill for honing one's ability to perceive and interpret visual information. Overall, this research methodology enabled a comprehensive exploration of the topic, shedding light on the significance of art and design education in fostering visual perception skills and enriching the learning process.

5. FINDING AND DISCUSION: LEARNING TO DRAW IS LEARNING TO SEE

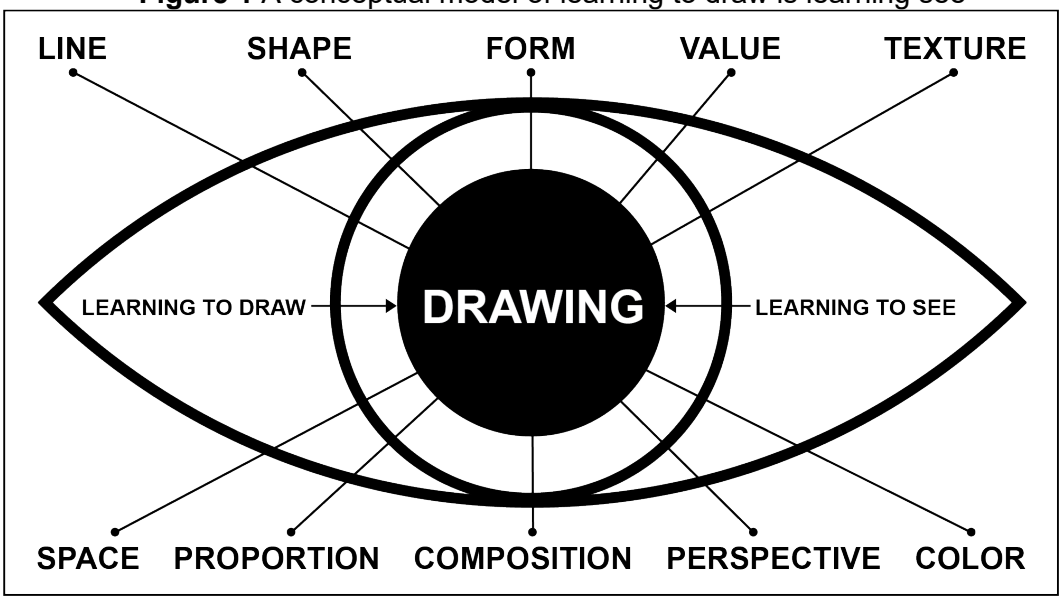
Table 1 The relationship of drawing elements towards learning to see

Drawing Elements	The elements of drawing related to learning to see
Line	By learning to see, become more adept at noticing the subtle variations and characteristics of lines in your subject. It can observe the direction, thickness, and quality of lines and translate them onto paper (Panotopoulou et al., 2020).
Shape	Training the eyes to see shapes involves recognizing the basic geometric or organic forms present in your subject. It becomes more skilled at identifying the outline and contours of objects, enabling you to depict them accurately (Stanyer & Rosenberg, 2020).
Form	Seeing form requires an understanding of how light interacts with objects to create highlights, shadows, and variations in tone. By honing observational skills, it can perceive the three-dimensional qualities of objects and translate them into convincing forms on a two-dimensional surface (Daston & Galison, 2021).

Value	Developing the ability to see value means becoming more sensitive to the differences in lightness and darkness in a subject. It can discern the subtle gradations of tone and replicate them in drawings to create depth and dimension (McLaughlin & Pak, 2020).
Texture	Observing texture involves noticing the surface qualities and patterns present in a subject. By keenly observing textures, it can recreate them through various mark-making techniques in drawings (Sailsbury, 2022).
Space	Learning to see space involves perceiving the relationships between objects and the surrounding environment. It becomes more aware of positive and negative spaces, as well as how objects are positioned and interact with one another in the composition (Gómez-Tone, 2021).
Proportion	Developing the ability to see proportion means accurately perceiving the size and scale relationships between different elements in a subject. It helps maintain accurate proportions and achieve a realistic representation (Khalilov, 2023).
Composition	A better understanding of how to arrange and organize the visual elements within a drawing. It can compose the artwork in a way that effectively communicates your intended message or captures the essence of the subject (Spencer, 2022).
Perspective	Perspective allows us to accurately perceive the spatial relationships between objects and the way they appear to recede into the distance. It can apply this knowledge to create realistic and convincing depth in drawings (Nafsika & Soeteja, 2021).
Color	When learning to see colour, one becomes more attuned to the hues, tones, and harmonies present in a subject. This enhanced perception enables us to effectively select and apply colours that accurately represent what we see (Barber, 2020).

Learning to see is an essential aspect of learning to draw, as it involves training the eyes to observe and perceive the visual elements of a subject or scene more attentively. By enhancing our ability to see line, shape, form, value, texture, space, proportions, composition, perspective, and colour, artists and designers can accurately represent these elements in drawings. Developing the skills of observation allows one to capture the essence and details of subject matter, resulting in more realistic and compelling artwork.

Figure 1 A conceptual model of learning to draw is learning see



Elements of drawing and seeing are abilities that require problem-solving abilities to develop. To produce a high-quality piece of art or design, students need to have strong problem-solving skills as artists or designers (Springer, 2023). A good drawing requires keen perception and observational skills. In practise, however, this is not always easy to do, especially if the topic is either complicated or dynamic. Artists and designers can get through this obstacle by frequently honing their observational abilities and being open to making changes to their work.

Realistic and accurate drawings require careful attention to proportion and perspective (Kholmuratovich et al., 2020). Unfortunately, this is not always easy to accomplish, especially when working with complicated forms or multiple points of view. To achieve precision in their artwork, artists and designers must learn to simplify difficult topics using tools like measurement and gridding. A well-executed drawing relies heavily on the quality of its composition and design (Fiorella & Kuhlmann, 2020). Composing something that is both aesthetically beautiful and conveys the intended message, however, is not always easy. Artists and designers can learn to work around this problem by practising the fundamentals of design, such as balance, rhythm, and harmony.

To get the intended result from a drawing, it is crucial to use the appropriate materials and methods (Hinz, 2019). There are a variety of materials and methods available, but mastering their unique qualities can be difficult. The only way for artists and designers to find a solution to this problem is to try new things, make mistakes, and then move on. In conclusion, problem-solving skills are essential at every stage of the learning process when it comes to drawing and seeing. By honing their observational abilities, understanding design principles, and mastering materials and processes, artists and designers can overcome these obstacles and create great drawings and designs.

6. RECOMMENDATION: POTENTIAL VALUE OF DRAWING IN HIGHER EDUCATION

Drawing is a skill that requires a person to develop their capacity to perceive and interpret the world around them as part of the process of learning to draw (Rahman, 2019). Artists and designers gain the ability to isolate and convey the most important aspects of their subjects through practise and training. Learning to draw is, in this sense, the same as learning to see, and the ability to do so is one that is highly valued in higher education. Students can build their visual thinking skills by learning to see, which are crucial in many professions, including art, design, science, and engineering (Bear & Skorton, 2019). Students can develop these talents by learning to see. To be successful in the fields of art and design, it is necessary to possess the vision and skills necessary to reflect the world properly and creatively around oneself. It is necessary to have the ability to perceive and manipulate complicated systems and structures to solve problems and come up with new solutions when working in the scientific and engineering fields.

In higher education levels, drawing can also be a useful tool for the development of one's abilities in critical thinking (Elder & Paul, 2020). Students gain the ability to think critically, ask questions, and establish connections between things that at first glance appear to be unrelated by drawing and studying their subjects in great depth. Students can improve their ability to think critically and creatively in their academics as well as in their future employment by engaging in this process of observation and analysis. Drawing can be a helpful tool in the process of developing one's ability to communicate effectively (Baer, 2021). Students can express complicated material in a way that is both more effective and understandable if they learn to visually depict their ideas. This is of utmost importance in professions such as architecture, which require one to be able to convey intricate design concepts in a visual format to be successful.

As a result, developing the capacity to draw is tantamount to developing one's visual perception, a skill that is highly valued in academic settings. Students can better prepare themselves for future success in a wide variety of professions and careers when they take drawing classes because these classes help students enhance their visual thinking, critical thinking, and communication skills.

7. CONCLUSION

Drawing is a key talent that is necessary in higher education's art and design professions. The advantages of drawing, however, go well beyond just the ability to make marks precisely. Learning to draw is like learning to see in many ways, and it can have a significant influence on how to interact with the environment.

Through the act of drawing, students gain the ability to examine their surroundings with greater focus and attention. A greater comprehension of the visual language used in various areas and learn to pay attention to nuances that a casual observer may overlook. Students can improve their creativity, problem-solving skills, and visual thinking with this elevated degree of visual awareness. Beyond these advantages, developing the ability to draw can enhance general cognitive and emotional growth. Drawing can help lower tension and anxiety, boost self-awareness, and enhance memory recall, according to research. Drawing can also assist children in finding meaning in life by providing a creative and meaningful way to interact with the outside world.

In conclusion, drawing talents are used in higher education in ways that go beyond merely honing technical skills with pencils and pens. Learning to draw is essentially learning to see, and developing this ability can have a significant influence on our growth as learners, artists, and designers. Drawing can help in developing a deeper understanding of oneself and the world one lives in. Finally, an individual can produce more meaningful and systematic artwork. Drawing does this by helping to engage with the world in a more meaningful way.

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Muhammad Abdullah acted as the main author and was responsible for this research. Assoc. Prof. Dr. Mohd Zahuri Khairani and Dr. Fareez Vincent Amos as supervisors in this study. Dr. Mohd Nasiruddin Abdul Aziz and Dr. Mohd Khairulnizam Ramlie as research assistants.

CONFLICT OF INTEREST

The author declares no potential conflict of interest with respect to the research, authorship, and/or publication of this article.

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