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Original Research

Mapping Story in Design Education: Roles and Disciplines in Japanese Undergraduate Courses

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Abstract: As design becomes increasingly interdisciplinary and complex, the role of story in design education requires a more precise understanding. This study investigated how stories are used in Japanese undergraduate design curricula, aiming to identify their functions and applications across various design disciplines. A framework-based categorization and inductive thematic analysis of 133 syllabi were conducted, covering twenty-eight Japanese universities that offer undergraduate design programs. Search terms included "story," "narrative," and "monogatari." The extracted data were categorized according to the design discipline and five story roles based on design perspectives. For discipline, media and content accounted for most syllabi (112 out of 133), while the remaining syllabi belonged to environment (11) and service and product (10). Story as a component appeared most frequently (78 out of 133), particularly in Japanese-oriented media genres such as anime and manga. Other roles included story as a context (16) for inspiration, a framing device (14) for conceptual development, a reference (15) as an implicit background story, and an experience (10) in shaping user interaction. This study presents a framework that clarifies the role of story in design education. The findings highlight the pedagogical value of storytelling across disciplines, providing a foundation for future comparative studies on global design education.

Keywords: *Design Education, Narrative, Story, Syllabus*

Introduction

The art of storytelling has always been a well-respected skill, and stories can be observed across various fields, including design (Dahlström 2020). A story serves as a powerful means of conveying information and creating lasting impressions, making it well-suited for design processes and work. Simultaneously, the scope of design has become increasingly complex and interdisciplinary, encompassing a wide range of domains and practices (Scupelli and Brooks 2018). This situation can lead to misunderstandings when discussing the role of stories in design, as the term "story" may refer to different functions depending on the discipline or context. Given this complexity, there is a growing need to examine systematically how stories are used in design education. However, despite the increasing attention being paid to storytelling approaches, few studies have systematically investigated how stories are incorporated into design education, particularly in Japan. This research gap limits our understanding of how story-based techniques should be taught to future design professionals.

Understanding the diverse roles of stories can help designers make more deliberate and effective use of them.

This study aims to investigate how story is incorporated into design curricula in Japanese higher education, particularly at the undergraduate level. To achieve this aim, it organizes the roles and applications of stories across multiple design disciplines. While previous studies have discussed the role of story in design, they have not provided comprehensive coverage of the increasingly complex and expanding field of design. Because higher education serves as a foundational stage for cultivating future design professionals and reflects the diverse demands of contemporary practice, examining how stories are treated in design education can offer valuable insights into the actual use of stories across the field.

To conduct this investigation empirically, this study drew on university syllabi from design-related programs in Japan (Loh and Ishimura 2013; Ueda 2017). Although syllabi content can be more abstract than that in the standard literature, these publicly available documents potentially provide a more exhaustive overview of how the story is utilized in design.

This study addresses the following research question: What is the framework for the role of stories in design education in Japanese higher education? By examining this question, this study contributes to a clearer understanding of how stories are conceptualized and taught in design curricula, supporting the development of story literacy and informing curriculum design and pedagogical strategies for contemporary design practice.

Literature Review

Story in Design

The terms "story" and "narrative" are often used interchangeably, yet scholars have distinguished between them in various ways (Polletta et al. 2011). Moreover, in the context of general usage in Japan, "story" tends to be understood as synonymous with "monogatari (物語)." However, monogatari "literally means 'a telling or recounting of something;' it strongly implies the cognate verb monogataru ('to recount something, to tell a tale'), in which the teller, or narrator (katari-te), exists a priori" (Stinchecum 1980, 375). This suggests that the concept of monogatari tends to be similar to the term narrative. However, in Japan, narrative itself is less familiar and often lacks a clearly shared definition. Therefore, for analytical consistency, this study uses the term "story" as an overarching term that encompasses both "narrative" and "monogatari." While "narrative" emphasizes structure and sequencing, and "monogatari" culturally implies a recounting by a narrator, these distinctions are considered secondary for this analysis.

Stories serve a wide range of functions in design. As the boundaries of design have become increasingly complex, the notion of "story in design" remains broad and ambiguous. Nevertheless, several studies have attempted to classify and organize these diverse roles. Grimaldi et al. (2013) classified narratives as broad to specific, as well as narrative use in

design. Narrative in design has also been divided into three areas: competency, process, and artifacts (Hayama et al. 2021). Another study proposed a four-level narrative model for product and service experiences: things, incidents, stories, and life narratives (Jordan et al. 2017). This framework highlights how objects contribute to user identity and well-being through various narrative layers. Several studies have explored various storytelling techniques for design practices (Dahlström, 2020; Lupton, 2017). Although these studies have provided valuable insights, their focus has tended to remain within the domain of product and service design, leaving the comprehensive use of stories inadequately addressed.

Design in Higher Education

Storytelling has become a key pedagogical approach in design education. It is regarded as a "meta-method" that spans the entire design process, supporting learners in framing problems, empathizing with users, and reflecting on their own design decisions (Hunsucker and Siegel 2015). In architecture education, narrative techniques have been integrated into design studios to enhance first-year students' abilities to conceptualize and articulate design ideas (Lee et al. 2023). These examples indicate that storytelling is not only a design practice but also a valuable educational approach that deepens the understanding of both process and outcome. Building on this educational perspective, this study focuses on Japanese undergraduate design programs that represent the foundational structure of higher education.

In Japan, bachelor's degree programs constitute the standard unit of higher education (National Institution for Academic Degrees and Quality Enhancement of Higher Education 2019). These undergraduate programs form the foundation of the university system, with institutional frameworks, quality assurance policies, and curricular structures designed to support this level of education. Bachelor's programs in Japanese higher education are structured to provide not only specialized knowledge but also a broader educational experience that integrates liberal arts and practical skills, and they are widely recognized for their role in cultivating talent and producing skilled professionals (Huang et al. 2021). This expectation is consistent with the mission of university-level design education, in which practical expertise and domain-specific knowledge are integral components of the curriculum.

Design education in this system exhibits several notable characteristics. First, it is a multidisciplinary area that combines science, engineering, and the arts (Findeli 2001). However, it may be unrealistic to expect a single design practitioner to fully master all these domains. Second, design education has a background that has shifted from crafts-based to academic (Gunn 2019). Thus, design education requires both research and practice (Meyer and Norman 2020), and theory and experimental heuristics are considered equally important. Third, it is rapidly evolving. Recent technological advancements and global changes have contributed to the blurring of disciplinary boundaries in design, and many thought leaders have articulated shifts over time (Scupelli and Brooks 2018). These shifts require design

education to adopt flexible and adaptive qualities that have long been associated with the design process itself (Cheng 2014; Ozkaynak and Ust 2012). Thus, there is an increasing need to revisit and rethink existing design frameworks to address the challenges of rapidly evolving design practices. These characteristics highlight a central challenge in design education: the vast scope of what must be learned.

Despite the valuable insights offered by previous research, a gap remains in understanding how stories are used in Japanese design education. To address this gap, this study analyzes university syllabi to explore how story is incorporated into Japanese design curricula.

Methodology

Search Strategy

The focus of this study was four-year undergraduate syllabi from Japanese universities. The survey targeted faculties, departments, and courses with the term "design" in Japanese or English at universities that are home to officers, committees, and secretariat members of the governing bodies of the following three Japanese design-related academic societies: the Japan Society of Design[1], Society for Design and Art Fusing with Science and Technology[2], and Japanese Society for the Science of Design[3]. There were fifty-one universities that met the inclusion criteria, of which forty-eight published syllabus data. All syllabi were described in Japanese. Only publicly available syllabi were used; thus, ethical approval was not required.

To identify the relevant classes, the search terms "story (ストーリー)," "narrative (ナラティブ)," and "monogatari (物語)" were used. These terms were searched in Japanese using the publicly accessible web-based syllabus systems of the target universities, which varied in format across institutions, focusing on specialized classes within the relevant faculties, departments, and courses for the academic year 2024. Liberal arts classes, as well as internships and "zemi" classes (a Japanese university system in which a professor meets with a small number of students in a discussion-based format), were excluded. This is because they often lack explicit design outputs or deliverables in their descriptions, making it difficult to reliably identify the role of story. The database search was conducted between June and September 2024 and resulted in 369 syllabi from forty-four universities.

[1] https://www.japansocietyofdesign.com/

[2] https://sdafst.or.jp/

[3] https://jssd.jp/

Selection Process

The screening process (summarized in Figure 1) confirmed whether the searched terms were included in the class descriptions or learning objectives and whether there were any duplicate syllabi. In total, 324 syllabi were used for further assessment. During the eligibility process, cases were included only if the story was treated as a central design requirement and there were explicit references to it in the design objectives, deliverables, or evaluation items. Mentions of cultural topics, literary works, or media titles (e.g., Toy Story) without a design requirement were excluded. Consequently, 191 syllabi were excluded, leaving 133 from twenty-eight universities for analysis (Appendix).

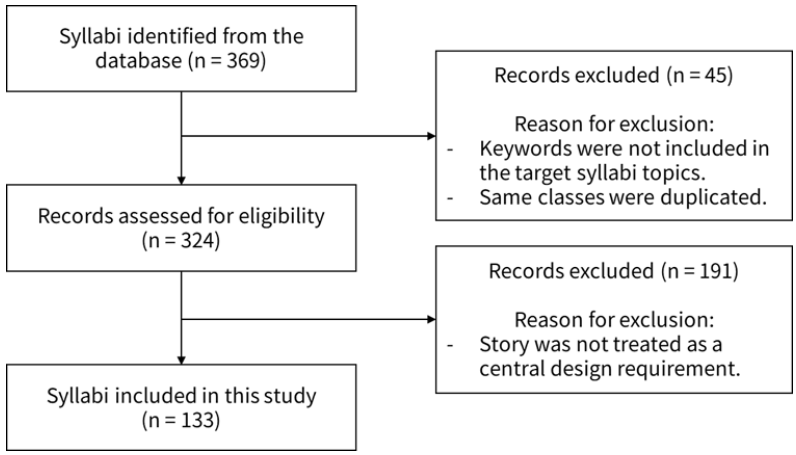

Figure 1: Outline of the Selection Process

Data Analysis

Data analysis was conducted to classify the design disciplines and roles of the story in each syllabus. As base information, statements containing the search terms and surrounding text were extracted from all screened syllabi. As the analysis relied solely on the written text of publicly available syllabi, informal or unarticulated uses of story in classroom practice may not be fully captured.

Subsequently, the design works mentioned in the class titles and descriptions were collected, focusing on those related to story. When multiple design works were present in a syllabus, all were included. Each design work was coded, and works with the same code were treated as a single type. The number of syllabi containing each type was calculated. These types were subsequently grouped to form design disciplines. The design disciplines in this study were classified as media and content, environment, and service and product. This classification was based on four design disciplines—visual communication, material objects,

organized services, and environments—which were modified according to current design practices (Buchanan 1992). Visual communication is rarely pure and is often combined with other media as part of a broader media and content strategy. In addition, service and product acknowledged the blurred lines between objects and services because these two are often integrated. Previous studies have attempted to classify designs based on the complexity of what is being designed (Doblin 1987; Jones 1992; Meredith 2008) by identifying subfields (Meyer and Norman 2020) or domains (Boling et al. 2024). These classifications were deemed suitable for this dataset, owing to the limited details provided in the syllabi.

Thematic analysis was conducted to classify the roles of the story in the syllabi (Braun and Clarke 2006). Initially, the roles of story were classified based on the typology of narrative use in design, which follows the chronological order of the three design categories: facilitation, process, and delivery (Grimaldi et al. 2013). However, these prior frameworks were unable to encompass the entire range of roles in this study. Therefore, referring to existing research, an inductive approach was adopted to derive new categories by closely examining syllabi content. Inductive coding was conducted in Japanese, using the syllabus text as the primary data source. For each syllabus retrieved via the keyword search, the coding unit was set at the syllabus level, with story roles assigned based on the textual context of the keyword occurrence. At a minimum, the sentence containing the keyword was reviewed. If necessary, the preceding and following sentences or the full text of the relevant section were examined to determine their roles. Each syllabus was assigned a single role. Although multiple roles can theoretically occur within a single syllabus, this was not observed in the present dataset. The coding process began with open coding, generating a diverse set of labels (e.g., "worldbuilding," "non-sequential content," and "branding/identity building"), which were iteratively consolidated into the five final story roles. The codes and analytical memos were recorded in Microsoft Excel and refined over six complete readings of the dataset. Role assignment drew on both designer–design work–user perspectives and the temporal sequence of the design process. When role assignment was ambiguous, the most salient perspective and stages indicated by the course objectives, deliverables, or evaluation focus—were adopted. English translations of the Japanese data were produced during manuscript preparation and checked to ensure interpretive consistency.

Results

Classification of Design Disciplines

The number of classified design disciplines and types of design works related to the term "story" are listed in Table 1. Most classes were in media and content (112/133), which refers to design works with a strong emphasis on expressive elements and information delivery. The types of design work in this discipline vary across multiple layers, including the framework (e.g., visual communication design and media art), media platforms (e.g., moving images and

publishing), media genres (e.g., anime and manga), and content element (characters). As Japanese-oriented media genres, anime (23) and manga (16) accounted for a large portion of the syllabi. In addition to entertainment, work-related designs, such as presentations, proposals, and portfolios, are included in this discipline. Mentions of presentations and proposals also appeared in the syllabi of other disciplines. However, only cases in which such formats were positioned as primary design outcomes were classified under this discipline. The environment, which is defined as large-scale, physical, and spatial designs, consisted of eleven classes. This discipline encompasses architecture, space, and city/landscape. The service and product discipline, which included ten entries, focuses on design works with which users directly interact.

Table 1: Design Disciplines and Specific Types of Design Works

Disciplines	*Number of Classes*	*Types*	*Number of Types*
Media and content	112	Anime	23
		Illustration/photograph/typography	18
		Manga	16
		Moving images	15
		Film	15
		Character	12
		Picture book	9
		Media art	8
		Stage play	8
		Video game	6
		TV drama/documentary	4
		Presentation	5
		Proposal	3
		Portfolio	3
		Visual communication design	2
		Novel	1
Environment	11	Architecture	7
		Space	4
		City/landscape	3
Service and product	10	Product	10
		Service	7
Total	133		179

Roles of Story

This study identified five roles of story: story as a context, a framing device, a component, a reference, and an experience. As summarized in Figure 2, these roles are not isolated categories but are positioned along a temporal sequence of the design process, each tied to a distinct perspective. In the earliest stage, stories appear from the designer's perspective, shaping exploration and direction-setting through context and framing. As the process advances, the focus shifts to the design work perspective, in which stories are embedded as tangible or perceivable elements, either as integral components or as references evoked by the work. Finally, at the stage of use, the user's perspective comes to the fore as stories are actively reconstructed through personal interaction and experience with the design. As shown in the role and discipline matrix in Table 2, not all roles were represented in each design discipline, except for media and content.

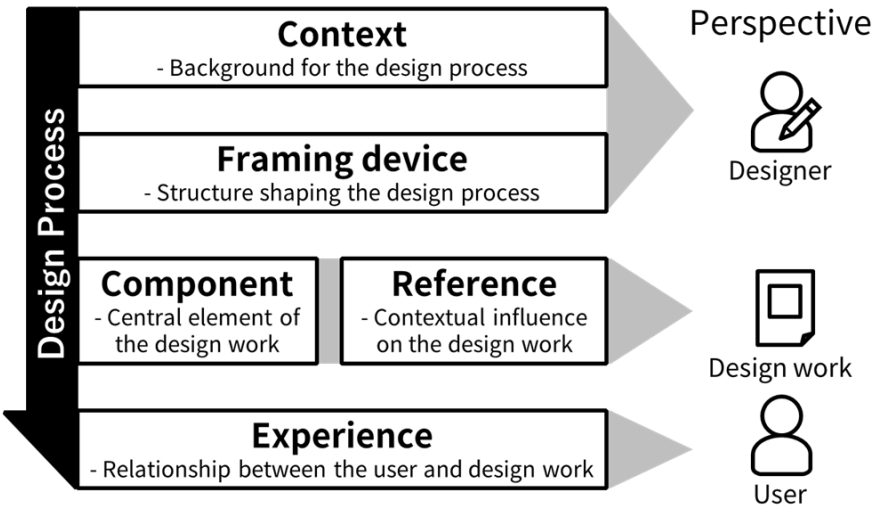

Figure 2. Story Roles Across the Perspective and Design Processes

Table 2: Matrix of Story Roles and Design Disciplines (N = 133)

	Context	*Framing Device*	*Component*	*Reference*	*Experience*
Media and content	14	5	78	15	1
Environment	2	7	-	-	2
Service and product	-	2	-	-	7
Total	16	14	78	15	10

Story as a Context

Story as a context refers to the role of uncovering and interpreting the backgrounds of design subjects before production begins. This role represents the designer's perspective, as designers actively use stories to explore the contexts that shape their creative inquiries. These stories concern personal experiences, self-reflection, and place-based contexts, including regional issues, and they provide a foundation for design exploration. Story as a context was observed in sixteen syllabi: fourteen from media and content, and two from environment.

Representative examples from media and content include Photography B II at Tokyo Zokei University, where students collect personal or location-specific stories as a foundation for photography. Communication Practice II at Tohoku University of Art and Design involves identifying and investigating local issues to extract stories and transform them into visual content. Photography A I at Tokyo Zokei University encourages students to explore the balance between their personal internal narratives and the external presence of their subjects through photographic expressions. In the environmental discipline, Urban History II at Kyoto Institute of Technology positions landscapes and scenery as being created in conjunction with story.

Story as a Framing Device

Story as a framing device refers to the role of story in structuring and reflects on the design process during production. While both story as a context and a framing device reflect designer perspectives, the former concerns discovery before production, while the latter concerns structuring during production. Designers actively use stories to support concept formation, guide the evolution of their thinking, and articulate the meaning behind their design decisions. In this role, story enables designers to clarify their relationship with their work and communicate the reasoning behind their creative processes. Story as a framing device was observed in fourteen syllabi: five from media and content, seven from environment, and two from service and product.

Representative examples from media and content include Graphic Communication at Kobe Design University, where students experience the process of narrativizing products while proposing graphic design solutions. In the environmental discipline, the Integrated Design Studio at Kanto Gakuin University used a story to materialize design concepts related to spatial contexts. In the service and product discipline, Tool Design Seminar I at the University of Shiga Prefecture explored story-driven concepts for products by reflecting on shared senses or memories.

Story as a Component

Story as a component refers to a narrative that functions centrally. This role differs from the role of story as a context and a framing device by representing the perspective of the design work itself, rather than the designer's process. In this role, stories are the central elements that define the internal structure of the work, most notably in media works that incorporate a sequential timeline, such as films, animation, manga, picture books, and stage plays. This story is often combined with other design elements (color, sound, or drawings) to form a cohesive work. Story as a component was observed in seventy-eight syllabi, all of which belonged to media and content.

Representative examples include Comic Illustration Practice at Kyushu Sangyo University, where the syllabus describes story as equivalent to time itself. Video Design II at Saga University references the historical evolution of media, from static images to narrative-driven moving images. Representation and Culture I at Musashino Art University describes picture books as "story formed by images and text," and Creative Counseling II at Tokyo Zokei University treats documentaries as fundamentally narrative-driven works.

Story as a Reference

Story as a reference refers to the role in which existing stories do not follow a sequential structure but rather suggest a temporal or historical context related to elements such as characters or scenes. Story as a component and reference share a common characteristic in that both represent the perspective of the design work. However, a story as a component differs in that it involves stories that are central to the design, forming its core, and progressing along a sequential timeline. While stories as a context and reference both use existing stories, the former serves as a background for the designer before production, whereas the latter allows the viewer or user to reconstruct stories from the design work itself. Story as a reference was observed in fifteen syllabi, all from media and content.

Representative examples include Introduction to Art and Design at the University of Tsukuba, where the syllabus encourages viewers to collect fragments of stories from artworks and reconstruct them into new stories. Typography at the University of Shiga Prefecture refers to storytelling using a single character as a way to evoke a sense of narrative. Media Expression Theory II at Musashino Art University describes photographs that suggest narratives without explicitly narrating stories.

Story as an Experience

Story as an experience refers to shaping how users interact with designs over time. This role represents a user perspective that is distinct from the designer or design work perspectives. Rather than being embedded within the design artifact itself, story in this role is structured

around users' actions, perceptions, and emotional responses before, during, and after the interaction. This includes depictions of anticipated scenes and sequences of use, with tools such as storyboards as a typical expression of this role. Story as an experience was observed in ten syllabi: one from media and content, two from environment, and seven from service and product.

A representative example from media and content, Scenography B at Musashino Art University, required students to plan an entire story of spatial experience, including the title, venue, presentation, music, costumes, and lighting.

From service and product, the story depicts "how and in what scenes the design is utilized, and what value it provides to the user" (Product Design Seminar III at Kyushu Sangyo University). UI/UX Design at the University of Tsukuba focuses on enhancing consumer experiences before and after use. Dynamic Interaction Design Practice at the University of Tsukuba and Design Prototyping (1) at Tokyo City University both reference storyboards for user experience (UX) design.

In the environmental discipline, the Special Seminar (Architectural Space Analysis in Toyama Prefecture) at Toyama University involves students creating a story depicting desired actions and scenes within architectural spaces.

Discussion

This study addressed the challenges of offering a comprehensive view of story in design, given that the disciplines and roles involved are inherently broad. In Japanese higher education, the functions of story have been covered in various design disciplines. This study also introduces a perspective-based framework that encompasses designers, design work, and users, highlighting how stories unfold across the design process, from early exploration to embedded stories and user experiences.

Although individual design experts may already be familiar with specific story applications, the approach used in this study highlights a broader range of usage scenarios in design curricula, thereby providing a more comprehensive perspective regarding the role of story in design. While the roles and disciplines in the results section are closely intertwined and not always easily separable, this section discusses each one primarily from the perspective of its respective conceptual focus.

Roles

Quantitatively, story as a component, reference, and context were the most frequently observed roles in the media and content discipline; in particular, the former two were found exclusively in this discipline. This represents a notable concentration compared with other roles and disciplines. This high frequency, particularly of story as a component, can be attributed to the nature of design outputs in this discipline. Some design works in this

discipline, such as moving images (anime and film) and sequential images (manga and picture books), are inherently time-based, making story structure rather than merely a supportive element. Moreover, the story as a component exists in a visible and tangible form and is more likely to meet the screening criteria of this study, which focused on syllabi, where story serves as a central design requirement. In contrast, the story as a reference also reflects the perspective of design work but differs significantly in its implicitness. The story as a reference describes the role in which background narratives are inferred by users; this was rarely described explicitly in syllabi and was found primarily within the media and content discipline. This may be because interpretation and close reading of works are particularly emphasized in this discipline. On the contrary, story as a context reflects the designer's perspective and involves using stories to explore and define design directions before production begins. Although these stories are not always visible in the final design output, their relatively high frequency suggests that context-based story use is recognized as a foundational element in many design courses. Beyond their concentration in media and content, the presence of stories as components and references highlights the value of explicitly recognizing the design work perspective within story roles. This perspective has not been addressed in previous classifications of narrative use in design (Grimaldi et al. 2013; Jordan et al. 2017), which primarily focused on roles from the designer's or user's perspective. Making it explicit not only fills the gap left by frameworks developed largely from product- and architecture-based contexts but also provides a conceptual basis for integrating such roles into educational settings, where they can inform cross-disciplinary approaches to teaching and applying stories in design.

Story as a framing device and an experience has been observed across multiple design disciplines, including media and content, environment, and service and product. In addition, media and content and environment share stories as contexts. These results suggest that the three roles are not specific to a particular discipline but instead represent the more widely applicable uses of story in design. Although media and content exhibit a distinct concentration of stories as components and references, the recurring presence of a context, a framing device, and an experience across multiple disciplines indicates that certain story functions transcend disciplinary boundaries. These roles can be viewed as conceptual bridges between content-focused design practices and those oriented toward the process or user experience. Previous studies have suggested that storytelling in product design can serve functions such as understanding users, supporting the design process, and persuading stakeholders (Dahlström 2020). These correspond to a context, a framing device, and an experience in this study, respectively. By confirming that such roles appear across a broad range of design disciplines, this study extends prior discussions beyond product design. It also highlights how story functions are embedded in educational settings, reflecting their foundational and cross-disciplinary nature.

Although the five roles of story (as a context, a framing device, a component, a reference, and an experience) were analytically distinguished in this study, their boundaries were not fixed in actual design practices. Importantly, these observations suggest that the five roles should not be understood as mutually exclusive. Rather, "role hybridity" is an inherent characteristic of story use in design. In particular, the story as a component, characterized by the perspective of the design work itself and the central elements of media works with a sequential timeline, has the potential to interact with or transform into other roles depending on how it is embedded and interpreted within the design context. In this study, two classes included the term "storyboard" related to UX design, which is presented in the form of a story as an experience. The storyboarding technique, which originates from the development of moving image content, is commonly used in product (Dahlström 2020) and system design (Truong et al. 2006). Although a storyboard itself is not design work, story is employed as a component in this technique. As an additional application of the story technique for visualizing user experience, customer journey maps are widely used to facilitate a shared understanding of design within a team. A customer journey map is another technique that utilizes story in design, enabling teams to visualize and communicate the user experience effectively (Kankainen et al. 2012). In addition, as mentioned in the results for story as a reference, there are design works that contain background stories, and these background stories may be components of other works. For example, in this role shift, story is the core component of the Bible, while playing a reference role in religious paintings, which are a snapshot (non-time-sequential content) of the Bible. Another feature of story as a component is its ability to coexist with other roles in a single design work. Some narrative games allow players to experience a double consciousness between themselves and their characters (Tu et al. 2023). This phenomenon illustrates how a story can simultaneously function as a component and an experience. Although such examples were not directly observed in the syllabi analyzed in this study, they point to future design practices, such as those involving immersive experiences such as virtual reality, where multiple story roles may overlap or hybridize. As story in design continues to evolve alongside emerging technologies, the distinctions between these roles may become increasingly fluid.

Disciplines

Media and content, which accounted for the overwhelming majority of syllabi (nearly ten times more than any other discipline), is considered the foundational discipline for engaging with story in design. Within this discipline, the application of story roles spans the perspectives of designers, design work, and users. This diversity reinforces the theoretical implication that story roles are not mutually exclusive, adding the perspective of "role hybridity" to existing frameworks. In education, addressing not only the components but also other roles in a structured curriculum enables students to understand a story as a structural composition, an

interpretive background, and a process-oriented tool. This holistic approach equips design students, both within and beyond media and content, with a broader repertoire of design strategies that transcends any single mode of expression. For example, in product or architecture courses, instructors could integrate story-focused assignments such as deriving design requirements from user narratives or using spatial story to examine experience.

This study's efforts to distinguish subtypes within the media and content discipline encountered certain limitations. In some syllabi, a single course includes multiple types of design works, such as animation and video games, which vary in their degree of interactivity. It is difficult to describe each course in terms of a single design output type because of continuous technological updates (Paul 2015). While the frameworks used in Japanese media art competitions often distinguish between still images, moving images, entertainment, and interactive formats, such distinctions can become blurred in educational settings where different media types are introduced together for exploration and practice (Tomimatsu et al. 2025). These findings underscore the fluidity of media and content education, as well as the difficulty of categorizing story usage solely by the type of media or degree of interactivity.

The prominence of manga and anime in the syllabi may reflect Japan's unique position within global pop culture. Their inclusion in university curricula likely results from a combination of cultural, educational, and institutional factors as the Japanese government treats it as critical for developing the content industry (Cabinet Office Government of Japan 2024). These media have become internationally recognized as narrative forms that exemplify Japanese creative identity (Dziesinski 2014). Previous research has noted that professional practice in these fields remains highly crafts-based and often relies on apprenticeship-style learning, which is how design education used to be (Paberz 2020). However, the presence of manga and anime in syllabi shows that Japanese higher education actively engages with these domains through conceptual and structured instruction, as well as through emerging trends in design education. Internationally, comics have also been incorporated into design curricula to cultivate narrative thinking across disciplines such as architecture and product design (Evensen 2014). In contrast to such cases where comics function as a pedagogical tool for students in diverse design fields, Japanese manga courses often set manga creation as their primary objective. This difference between multi-disciplinary application and production-centered instruction is significant from an educational methodological perspective. Integrating manga and anime production into a general design process encompassing problem identification, research, concept development, and expression could facilitate the transfer of insights beyond the media and content disciplines to other fields, such as architecture and product design. Furthermore, incorporating critique and analysis into the curriculum can promote understanding from the audience's perspective by reconstructing story as a reference and context. Such an integrated approach would make the multi-layered role of story more visible in education and contribute to the advancement of cross-disciplinary design education.

The environment and service and product disciplines commonly employed story as a framing device and an experience, and did not include roles that had perspectives of design work (a component and reference). In contrast to media and content, where stories were often incorporated as visible elements within the final design outputs, these two disciplines tended to utilize stories more implicitly as part of the design process itself rather than as tangible design works. While the number of cases was limited, and the descriptions were often abstract, some differences in the way stories function may also be suggested by the nature of each discipline. In the environmental discipline, story was used to interpret historical or cultural backgrounds. By contrast, the service and product disciplines emphasized imagined or structured experiences, focusing on users' actions and scenarios. When combined, these findings highlight that story in design can operate in multiple conceptual layers, depending on the situation. While neither discipline explicitly included the roles associated with the design work perspective (a component and reference), both provided opportunities for students to develop and present their proposals. When such presentations or proposals are regarded as design work, the component role, which serves as a key element of the final output, can be indirectly connected to these activities.

Limitations

The first limitation of this study concerns the coding process. All coding and role assignment were conducted by a single coder. Although analytical memos and multiple iterative readings were used to enhance consistency, inter-coder reliability was not formally tested. Future studies could improve validity through peer debriefing or shared coding processes.

The second limitation concerns the nature of the data source. Because this study relied solely on publicly available syllabus descriptions, some classroom practices and informal uses of story that are not explicitly written may not have been captured. Therefore, the findings should be interpreted as reflecting how story is presented at the curriculum design level rather than the full scope of pedagogical implementation.

The third concerns the gap between curricular intent and professional application. This study analyzed how story is positioned in Japanese undergraduate design education. Future research examining how graduates apply story-based approaches to their work is required to address the relationship between educational practices and professional and industrial contexts. Such insights will help clarify the practical relevance of academic content and strengthen the justification for including story instruction in the design curriculum.

The fourth concerns the geographical scope of this study. This study focused exclusively on design syllabi from Japanese universities. Although this provided a valuable snapshot of how the story is approached in Japanese design education, the findings may also reflect cultural and industrial particularities. For instance, Japan has a strong tradition in media and content production, such as manga and anime, which may partly explain the predominance

of stories in media and content-related syllabi observed in this study (Hernández-Pérez 2019). By contrast, other countries may place greater emphasis on integrating stories into disciplines such as product design or architecture, influenced by different educational frameworks and industry needs. Future research could explore how the story is positioned across national contexts to determine whether the patterns observed in Japan are culturally specific or part of a broader trend in global design education.

Conclusion

This study established a framework that classified the roles of story in Japanese design education into five categories (a context, a framing device, a component, a reference, and an experience) mapped across the perspectives of designers, design work, and users. By systematically analyzing Japanese university-level design curricula, this study clarified how stories are positioned and utilized, thereby advancing our understanding of stories as both design techniques and pedagogical elements. This framework not only provides a comprehensive overview of story applications within Japanese design education but also lays a foundation for future comparative studies across international design education systems.

This framework, grounded in an analysis of undergraduate curricula, is primarily significant for supporting the education of future designers. By offering a common language that bridges disciplinary boundaries, it can help educators design curricula that prepare students to engage in varied design contexts and communicate effectively across fields. In doing so, it can equip emerging designers with a shared conceptual foundation that can adapt to evolving societal and technological conditions, ensuring the continued relevance of story-based approaches. Beyond educational settings, this framework may also support design practitioners in reflecting on how story influences decisions in real-world projects, enabling more intentional application across product, architectural, and service design.

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The author acknowledges the use of ChatGPT to support several editorial and conceptual clarification tasks during the preparation of this manuscript. The AI system was used to (1) improve clarity and readability of English expressions, (2) provide definitions to key terms or

concepts, (3) summarize or restate concepts drawn from the cited literature for the purpose of checking alignment of terminology, and (4) revise the manuscript in response to reviewer comments. The prompts used include representative requests such as:

- Improve clarity of this paragraph while keeping the meaning unchanged.
- Provide alternative phrasings for this methodological description.
- Explain how this concept has been defined in prior literature.
- Suggest options for responding to this reviewer comment.

The AI output was used only as draft linguistic suggestions or conceptual restatements for the author's review. All analytical decisions and the final content of the manuscript were determined solely by the author. While the author acknowledges the usage of AI, the author, Shunta Tomimatsu, is the sole creator of this article and takes full responsibility for its content, as outlined in COPE recommendations.

Informed Consent

The author declares that informed consent was not required as there were no human participants involved.

Conflict of Interest

The authors declare that there is no conflict of interest.

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Appendix

University	*Faculty*	*URL*
Kyoto University of the Arts	Faculty of the Arts	https://asm-ediea.com/kyoto-art/open/ja/syllabuses
Kyoto Seika University	Faculty of Design	https://portal.kyoto-seika.ac.jp/uprx/up/pk/pky001/Pky00101.xhtml
Saga University	Faculty of Art and Regional Design	https://lc2.sc.admin.saga-u.ac.jp/lcu-web/SC_06001B00_21
Nagoya University of the Arts	School of the Arts	https://meigei.nua.ac.jp/uprx/up/pk/pky001/Pky00101.xhtml
Nihon University	College of Art / College of Industrial Technology	http://lc-syl.art.nihon-u.ac.jp/
Aichi Sangyo University	Faculty of Design and Fine Arts	https://online.asu.ac.jp/uprx/up/pk/pky001/Pky00101.xhtml
Kanto Gakuin University	College of Interhuman Symbiotic Studies	https://info.kanto-gakuin.ac.jp/public/web/Syllabus/WebSyllabusKensaku/UI/WSL_SyllabusKensaku.aspx
Kyoto Institute of Technology	School of Science and Technology	https://www.syllabus.kit.ac.jp/
Kindai University	Faculty of Literature, Arts and Cultural Studies	https://syllabus.itp.kindai.ac.jp/customer/Form/sy01000.aspx
Kyushu Sangyo University	Faculty of Art and Design	https://ksuweb.kyusan-u.ac.jp/lcu-web/
Kyushu University	School of Design	https://ku-portal.kyushu-u.ac.jp/campusweb/slbsskgr.do
Kyoto Saga University of Arts	Faculty of Arts	https://unipa.kyoto-saga.ac.jp/uprx/up/pk/pky001/Pky00101.xhtml
Sapporo City University	School of Design	https://syllabus.scu.ac.jp/
The University of Shiga Prefecture	School of Human Cultures	https://unipa.usp.ac.jp/uprx/up/pk/pky001/Pky00101.xhtml

Kobe Design University	School of Arts and Design	https://portal.kobe-du.ac.jp/uprx/up/pk/pky001/Pky00101.xhtml
Chiba Institute of Technology	Faculty of Creative Engineering	https://portal.it-chiba.ac.jp/uprx/up/pk/pky001/Pky00101.xhtml
Takushoku University	Faculty of Engineering	https://syllabus.takushoku-u.ac.jp/
University of Tsukuba	School of Art and Design	https://kdb.tsukuba.ac.jp/campusweb/
Nagaoka Institute of Design	-	https://palette2.nagaoka-id.ac.jp/uprx/up/pk/pky001/Pky00101.xhtml
University of East Asia	Art & Design	https://unipa.toua-u.jp/uprx/up/pk/pky001/Pky00101.xhtml
Tokyo City University	Faculty of Architecture and Urban Design	https://websrv.tcu.ac.jp/tcu_web_v3/
Tokyo Zokei University	Faculty of Zokei	https://unipaap.zokei.ac.jp/uprx/up/pk/pky001/Pky00101.xhtml
Tohoku University of Art and Design	School of Design	https://portal.tuad.ac.jp/
Toyo University	Faculty of Design for Welfare Society	https://g-sys.toyo.ac.jp/syllabus/
University of Toyama	School of Art and Design	https://www.new-syllabus.adm.u-toyama.ac.jp/
Musashino Art University	College of Art and Design	https://mau.musabi.ac.jp/lcu-web/SC_06001B00_21
Nagoya University of Arts and Sciences	School of Media and Design	https://portal.nuas.ac.jp/uprx/up/pk/pky001/Pky00101.xhtml

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