

Storytelling Technique for Building Use-case Scenarios for Design Development

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Abstract

Numerous studies have dealt with what kind of value narrative can have for creating a more effective design process. However, there is lack of consideration of storytelling techniques on a stage-by-stage level, where each stage of storytelling technique can draw attention to detailed content for creating use-case scenarios for design development. This research aims to identify the potential implications for design development by using storytelling techniques. For the empirical research, two types of workshops were conducted in order to select the most appropriate storytelling technique for building use-case scenarios, and to determine the relationship between the two methods. Afterwards, co-occurrence analysis was conducted to examine how each step of storytelling technique can help designers develop an enriched content of use-case scenario. Subsequently, the major findings of this research are further discussed, dealing with how each of the storytelling technique steps can help designers to incorporate important issues when building use-case scenarios for design development. These issues are: alternative and competitor's solution which can aid designers to create better design features; status quo bias of user which can help the designer investigate the occurring reason of the issue; and finally, social/political values of user which have the potential of guiding designers to create strengthened user experience. The results of this research help designers and design researchers concentrate on crucial factors such as the alternative or competitor's solution, the status quo bias of user, and social/political values of the user when dealing with issues of building use-case scenarios.

Keywords: Storytelling technique; use-case scenario; user insights; design development.

There are researches in the industrial design field that suggest benefits of integrating narrative into the design process by using narrative as a tool to communicate information considering user insight (Grimaldi *et al.*, 2013). However, these researches often focus only on the values of using narrative within the design process, and does not examine storytelling techniques stage by stage in order to develop detailed and specific use-case scenarios for design development.

Use-case scenarios as a design method takes the role of representing envisioned user interactions which are meaningful to the user (Aulet, 2015). As such, use-case scenario is a story structured around the user which supports designers to understand and empathize with users for design development (Grimaldi *et al.*, 2013; Aulet, 2015). Therefore, storytelling techniques can be applied to use-case scenario, due to the fact that narratives function to convey information, evoke reflectivity, and to spark imagination and increase creativity (Grimaldi *et al.*, 2013). Hence, examination of using storytelling technique to build use-case scenarios can help designers who are developing use-case scenarios to gain rich user insight (Aulet, 2015). This research aims to examine the objectives of storytelling technique, and

investigate how these objectives can help build use-case scenarios on a more detailed and holistic level.

In order to achieve the research aim, empirical research of which is consisted of three stages were conducted. The first stage consists of storytelling-selection workshop, where the workshop participants (design process experts of four) grouped the stages of different design methods by its objective, and were able to establish a set of criteria. Then, the participants evaluated the four prominent storytelling techniques by the established criteria and selected the representative storytelling technique.

The second stage of the empirical research, scenario-building workshop, was conducted to identify the relationship between storytelling technique and use-case scenarios. Five separate scenario- building workshops were proceeded with each workshop including four design process experts and one storytelling technique expert. Four out of the five workshops, the design process experts belonged to the academia, for the reason of their proficiency of linking another discipline to the context of design. One out of the five workshops, the design process experts belonged to the industry for reason of gaining further insight on the design process in the perspective of practice.

The third stage of empirical research, qualitative coding analysis, was conducted with the results of scenario-building workshop to identify patterns within qualitative data (Saldaña *et al.*, 2013). Subsequently, co-occurrence analysis, which is the counting of paired data within a collection unit, was carried out (Buzydlowski, 2015). Finally, further inquiry of the empirical research data was conducted, in which the data emphasizes on what potential each stage of the representative storytelling technique have for building use-case scenarios for design development.

Use-case Scenarios and Storytelling Technique within Context of Design Process

Storytelling and use-case scenarios have many similarities especially from the perspective of an overall process which helps narrow down a broad idea into a specific byproduct. In the case of use-case scenario, a phenomena is defined, which leads to the definition of the target user and design problem (Ambrose *et al.*, 2014; Aulet, 2015). Thereafter, the use-case scenario proceeds to the user confronting the design problem by interacting with a design solution, where user sentiment will also be presented (Aulet, 2015; Martin *et al.*, 2012; Kumar, 2013). Subsequently, the overall change of the user will be shown in the final stage of use-case scenarios which aids designers to create a final design (Martin *et al.*, 2012; Kumar, 2013).

In the case of a storytelling, a writer initiates the process with a broad idea which ignites a story (Brooks, 2011). The idea then becomes a concept which is an evolved idea by asking “what if?” (Brooks, 2011). After the concept, the writer narrows down the idea through the development of a logline or a premise (Snyder, 2005; Truby, 2008; Howard *et al.*, 1995). The logline and premise are single line statements with some event that starts the action, some sense of the protagonist, and outcome of a story (Snyder, 2005; Truby, 2008). These single line statements are the foundations of a whole story. For writers to develop these statements into a plot, there are various step-by-step guidelines or techniques used in practice suggested by the

field experts such as David Howard, John Truby, Blake Snyder, and Christopher Vogler.

For both of these processes, there is one element that plays an important role: the character, or the user. The design process serves the designer to understand the target user with the objective of creating a solution (Ambrose *et al.*, 2014), where the use-case scenario collects intrinsic and extrinsic factors of the user (Aulet, 2015). Likewise, storytelling techniques have the same value to a writer, where the techniques enable the writer to create characters, the story world which surrounds the characters, and the plot (Truby, 2008). Due to the fact that storytelling techniques depends heavily on the character and the journey, moral debate, possible conflict, and the fact that use-case scenario functions to identify user insights, it would be highly relevant to explore and compare storytelling techniques and use-case scenarios for design development based on user insights.

Integration of Narrative and Storytelling in Design Process

Previously, there have been research on integrating narrative into a design process and investigate its influence on design quality. First in Ganoe (1999)'s research, the author derives a new theoretical framework from narrative structure that "establishes specific design criteria applicable to understanding the human experience of interior space" (Ganoe, 1999). The developed framework functions to predict a possible reaction of the space occupiers and assist designers to make concrete decisions. In this work, narrative is used as a tool to assist designers by taking human meaning into consideration. Similarly, there was a study on humanizing design through a narrative inquiry. Here, the narrative inquiry is used as a 'constructivist learning activity' where designers are assisted to derive meaning from human experience (Danko, 2006). By integrating narrative inquiry, the authors suggest that a design can be more human-centered. Again, this research uses a concept of narrative as a tool for better understanding of users.

While there are numerous research that attempts to use narrative as a tool during the design process, there is a lack of research that comprehensively defines what narrative means in design. In a recent study by Grimaldi *et al.* (2013), the research discusses five different definitions of narratives, analyzes the functions of the narrative in design process, and suggests types of narrative to use during particular design processes (Grimaldi *et al.*, 2013). Grimaldi *et al.* (2013) organizes seven representative functions of narrative and they are (1) conveying information, (2) evoking reflectivity, (3) showing/teaching values, (4) empathy and identification, (5) imagination and creativity, (6) memorability, (7) delighting (Grimaldi *et al.*, 2013). Narratives function to convey information especially for designers and researchers to communicate insights more clearly using persona stories and stories about current product use. In addition, narratives can evoke reflectivity by placing products to a conflict to highlight design problems. Narratives also can be used to show and teach values to the designers, to achieve empathy with real users, to spark imagination and increase creativity, to remember user insights better, and to delight the fellow designers during the design process. Three of the seven functions—1) conveying information, (4) empathy and identification, and (6) memorability—focus on the communication of, empathizing with, and the memorability of user insights during the design process. The element of user insight is considered important because the design process focuses on the user, and what kind of contextual situation the user is placed in (Best, 2010). Likewise, use-case scenarios within the design process assists designers to gain user

insight considering the design problem, user actions, user sentiment, which focuses on the user and user's interaction with his or her extrinsic factors within a contextual situation. (Ambrose *et al.*, 2014; Martin *et al.*, 2012; Kumar, 2013; Aulet, 2015)

Types of Story Design Techniques

All storytelling techniques involve common steps during the initial stage where every story begins with an idea which becomes a concept, and the concept is developed into a logline or a premise (Snyder, 2005; Truby, 2008; Howard *et al.*, 1995; Vogler, 2007)). However, it is the process after the logline or a premise called a plot development that differ for various scholars. Four prominent storytelling techniques were selected of which are as followed: 1) Blake Snyder's *Beat Sheet*, 2) Christopher Vogler's *Hero's Journey*, 3) Larry Brooks' *Story Structure*, and 4) John Truby's *22 Steps of Story Structure*. These storytelling techniques were selected for the reason of following the ideas of Aristotle's *narrative theory*, which considers in context both the writer and the narrative's effect on the audience (Grimaldi *et al.*, 2013).

Blake Snyder's *Beat Sheet* is composed of 15 beats or elements that compose a screenplay. The first column of Table 1 lists the 15 'beats', where each of the 'beats' guides the writer to write one or two sentences explaining the each stage of the plot (Snyder, 2005). The next column, Christopher Vogler's *Hero's Journey* is composed of 12 structural elements that are found universally in myths, fairy tales, and movies (Vogler, 2007). The third column, Larry Brooks' *Story Structure* is composed of four main parts (setup, response, attack, and resolution). Like the *Hero's Journey*, the four parts are also in the perspective of the protagonist using the terms such as 'orphan' and 'wanderer' (Brooks, 2011). Lastly, John Truby's *22 Steps of Story Structure* tackles the structural element from the perspective of the protagonist, the plot, the story world, and the moral argument (Truby, 2008).

Table 1. Candidate storytelling techniques for use-case scenario.

<i>Beat Sheet</i>	<i>Hero's Journey</i>	<i>Story Structure</i>	<i>22 Steps of Story Structure</i>
Opening Image	Ordinary World	Setup (Orphan)	Self-revelation, need, and desire
Theme Stated	Call to Adventure	First plot point	Ghost and story world
Set-Up	Refusal of the Call	Response (Wanderer); First pinch point	Weakness and need
Catalyst	Meeting with the Mentor	Midpoint	Inciting event

Debate	Crossing the First Threshold	Attack (Warrior); Second pinch point	Desire (goal)
Break into Two	Tests, Allies, Enemies	Second plot point	Ally or allies
B Story	Approach to the Inmost Cave	Resolution (Martyr)	Opponent and/or mystery
Fun and Games	Ordeal		Fake-Ally Opponent
Midpoint	Reward		First revelation and decision
Bad Guys Close In	The Road Back		Plan
All is Lost	Resurrection		Opponent's plan and main counterattack
Dark Night of the Soul	Return with the Elixir		Drive
Break into Three			Attack by ally
Finale			Apparent defeat
Final Image			Second revelation and decision
			Audience revelation
			Third revelation and decision
			Gate, gauntlet, visit to death
			Battle
			Self-revelation
			Moral decision
			New equilibrium

Empirical Identification of Application Condition

The empirical research consists of methods of: selecting the representative storytelling technique, linking the selected storytelling technique to the key factors of use-case scenario, and analyzing the findings concerning the relationship between the technique and factors. With the findings obtained from the empirical research, it was possible to gain insight on each stage of the storytelling technique's possibility of aiding designers for enhanced understanding and communicating of user needs for building use-case scenarios.

Representative Storytelling Technique for Building Use-case Scenario

To select the representative storytelling technique for building use-case scenarios, criteria were identified from the storytelling-selection workshop by using the KJ method. The KJ method was selected for this process to meaningfully cluster insights from research (Martin *et al.*, 2012).

Narrative-led design methods were chosen as the source of the selection criteria for the reason that these design methods function as synthetic and analytic techniques, which bring out design deliverables in the same way as use-case scenarios (Aulet, 2015).

The established selection criteria is as follows: contextual situation of user, user actions, user thoughts, and user sentiment. The criteria were also classified into two groups which are the definition group and development group. First, the definition group is of which the user needs and design problem are defined. Second, the solution group is of which starts from the user perceiving the design solution and ends to results due to the interaction between the user and design solution.

The 22 Step Story Structure (Table 2) was selected as the representative storytelling technique. This was due to the fact that the 22 Step Story Structure satisfied both aspects of defining user needs and design problem (definition part) and user-solution interaction (solution part) while addressing the user's contextual situation, user actions, user thoughts, user sentiment.

Table 2. 22 Step Story Structure's definition of each step (Truby, 2008).

1. Self-revelation, need, and desire	Representing the overall range of change of the protagonist in the story
2. Ghost and story world	Everything that has happened to the hero before the story you are telling begins
3. Weakness and need	Character flaw / What the protagonist must fulfil in order to have a better life
4. Inciting event	An event from the outside that causes the protagonist to come up with a goal and take action
5. Desire (goal)	The protagonist's particular goal
6. Ally or allies	The protagonist usually gains one or more allies to help him overcome the opponent and reach the goal
7. Opponent and/or mystery	The characters who wants to prevent the protagonist from reaching his or her goal
8. Fake-Ally Opponent	A character who appears to be an ally of the hero but is actually an opponent or working for the main opponent
9. First revelation and decision	The protagonist gets a revelations or reveal, which is a surprising piece of new information
10. Plan	A set of guidelines and strategies the hero will use to overcome his opponent and reach the goal
11. Opponent's plan and main counterattack	The opponent comes up with a strategy to get the goal and begins to execute a line of attack against the protagonist
12. Drive	The series of actions the hero performs to defeat the opponent and win
13. Attack by ally	The ally encouraging the main character to keep on going by telling him or her the hard truth
14. Apparent defeat	It seems as if the protagonist believes that all is lost and his opponent has won but the end there is hope

15. Second revelation and decision	The protagonist gets a new piece of information that shows him or her that victory is still possible
16. Audience revelation	The moment of when the audience learns an important piece of new information
17. Third revelation and decision	New and valuable information revealed to the protagonist, which makes him or her feel stronger and more determined to win
18. Gate, gauntlet, visit to death	The conflict between the protagonist and opponent intensifies and it becomes almost unbearable
19. Battle	The final conflict in which determines who wins the goal
20. Self-revelation	The protagonist learn who he or she truly is
21. Moral decision	The moment when the protagonist chooses between two courses of action, each of which stands for a set of values and a way of living
22. New equilibrium	Once the desire and need have been fulfilled, everything goes back to normal (with the important change of the protagonist)

Potential of Storytelling Technique for Use-case Scenario Development

As the representative storytelling technique was selected, it was possible to proceed research on finding the relationship between storytelling techniques and use-case scenarios. To accomplish this, five separate scenario-building workshops were conducted with each workshop consisting of four design process experts and one storytelling technique expert. The design process experts' role within the workshop was to examine through discussion of how each stage of the *22 Step Story Structure* could be used to build use-case scenarios. The storytelling technique expert had the role of explaining the stages of the selected storytelling technique and guiding the design experts of their interpretation of the storytelling technique based on its correct function.

All of the five workshops concluded with a semi-structured interview session which was organized to identify and define the key factors of use-case scenarios. A total of 14 key factors of use-case scenario was identified of which are: 'user's contextual situation', 'user needs', 'user goal', 'social and political values', 'problem and opportunity', 'user perception', 'user interpretation', 'user interaction', 'status quo', alternative or competitor's solution', 'designer revelation', 'design feature', 'design solution', and 'changed life' (Table 3).

Table 3. Key factors of use-case scenario identified within scenario-building workshop.

<i>User's Contextual Situation</i>	Context of the situation of which user is in.
<i>User Needs</i>	Sought out outcomes of which the user will reach goal.
<i>User Goal</i>	Desired changes within user's current situation.
<i>Social and Political Values</i>	Social and political views of the user which affects the user's choices.

<i>Problem and Opportunity</i>	The issues concerning user needs and contextual situation. These issues can be also the source of inspiration for possible design solutions.
<i>User Perception</i>	The way user will notice intrinsic and extrinsic factors prior to the interaction of intrinsic and extrinsic factors.
<i>User Interpretation</i>	The way user will understand intrinsic and extrinsic factors during the interaction of the factors.
<i>User Interaction</i>	The way user will communicate with intrinsic and extrinsic factors.
<i>Status Quo</i>	User's bias / opinion.
<i>Alternative or Competitor's Solution</i>	Other solutions which serves the needs of the user. Within or out of the design development's product range.
<i>Designer Revelation</i>	User insight gained by designer.
<i>Design Feature</i>	Important elements of the design.
<i>Solution</i>	Solution of which will satisfy the needs of the user.
<i>Changed Life</i>	User reaching his or her goal due to the interaction with design solution.

With the results of the scenario-building workshop, qualitative coding analysis and co-occurrence analysis drew out the relationship between the key factors of use-case scenario and each stages of the *22 Step Story Structure*. Priori coding was supported by the pre-existing stages of *22 Step Story Structure*, and the open coding was conducted based on the key factors of the use-case scenarios. The data of the scenario-building workshop were converted into five individual transcripts for each of the five workshops which were conducted. The transcripts were then loaded onto a qualitative data analysis software, Nvivo. The qualitative coding analysis was conducted twice in order to obtain the inter-coder reliability. Two inter-coders participated in this process, where the calculated Kappa coefficient was 0.73737 and the strength of the Kappa coefficient is substantial (Landis, 1974). As the qualitative coding analysis was finalized, co-occurrence analysis was conducted to identify how storytelling techniques can be used by designers to build use-case scenarios which addresses the change that new design can offer to users. With the data gained from the co-occurrence analysis, further inquiry of the transcripts from the scenario-building workshop was conducted. This was done in order to identify the meaning of the connection between the activity codes which are the stages of the *22 Step Story Structure* and the key factors of use-case scenario. The results of the co-occurrence analysis is shown in Table 4.

Table 4. The results of co-occurrence analysis.

A. Stages of 22 Step Story Structure	B. Key Factors of Use-case Scenario	The role of A within the context of B
<i>1. Self-revelation, need, and desire</i>	User needs,	The background of the user which functions to identify the initial user needs and what the user's present contextual situation is.
<i>2. Ghost and story world</i>	User's contextual situation	
<i>3. Weakness and</i>		

<i>need</i>		
4. <i>Inciting event</i>	Problem and opportunity User interaction, User interpretation,	Trigger points of the user journey which allows change to the user.
5. <i>Desire (goal)</i>	User goal	What the user wants to ultimately achieve.
6. <i>Ally or allies</i>	User needs, Alternative or competitor's solution,	1. The solution's design features which fulfills the needs of the user 2. The strengths of the alternative or competitor's solution which can be benchmarked for the development of design
13. <i>Attack by ally</i>	Design feature, Solution	
7. <i>Opponent and/or mystery</i>	User needs, Problem and opportunity,	The weaknesses of the alternative or competitor's solution used as design guidelines of which not to follow, or as design research factors that needs further investigation to be solved to fulfill user needs.
11. <i>Opponent's plan and main counterattack</i>	Alternative or competitor's solution, Design feature, Solution	
8. <i>Fake-Ally Opponent</i>	Status Quo	An event from the outside that causes the protagonist to come up with a goal and take action
9. <i>First revelation</i>	Problem and opportunity, Design solution, User perception	1. The problems of which the user is experiencing 2. How the user perceives the design solution can be carried out to be key insights for design development
15. <i>Second revelation</i>		
17. <i>Third revelation</i>		
20. <i>Self-revelation</i>		
10. <i>Plan</i>	User perception	The perception of the user concerning the solution
12. <i>Drive</i>	User interaction	The actions the user takes when interacting with the design solution
14. <i>Apparent defeat</i>	Problem and opportunity Status quo	The point of what causes the status quo, which can be used as a design opportunity
16. <i>Audience revelation</i>	Designer revelation	The designer gaining insight for design development.
18. <i>Gate, gauntlet, visit to death</i>	Problem and opportunity, User interaction	The interaction between the problem and the user
19. <i>Battle</i>		
21. <i>Moral decision</i>	User perception Social and Political Values	The social and political values of the user which affect the choices and actions of the user
22. <i>New equilibrium</i>	Solution, Changed life	The expected changed life of the user after the user has interacted with the solution

Out of the overall co-occurrence, three sets of co-occurrences were strongly linked with the research aims to identify the potential of storytelling techniques which helps build use-case scenarios for design development, where major insights were found.

Among 22 co-occurrences, the first major insights were found from the co-occurrence of ‘ally’ of the storytelling technique, 22 *Step Story Structure*. Ally in the storytelling technique is used as a tool for helping the protagonist reach his or her goal (Truby, 2008). Likewise, ally could be used as a tool for helping the user meeting their needs in the design context. This is because the concept ‘ally’ had strong connections with key factors of use-case scenario: ‘user needs’, ‘design feature’, and ‘solution’. A closer inspection of the scenario-building workshop transcript revealed that ‘ally’ in the design process acted as design features of the solution which fulfilled user needs. For example, a double-sided pen has both fine and medium tips on either end. The tips of different thicknesses will be the user’s ally which helps fulfill the user needs of both note-taking and highlighting lines. Further, an ‘attack by ally’ in the storytelling technique refers to the ally critically urging the protagonist from making unwise choices (Truby, 2008). The concept of attack by ally for the design process can be used to investigate which design features have problems (unwise choices) hence need changes and/or improvement. This is due to the fact that ‘attack by ally’ had strong relation with ‘alternative or competitor’s solution’. From the transcript of the scenario-building workshop, the ‘attack by ally’ in the design process prompted for an alternative solution by revealing ‘unwise choices’. It also referred to competitors’ solution which can be benchmarked for design development. It is important for designers to have insights into the alternative or competitor’s solution. The empirical findings on ‘attack by ally’ in the design process can be supported by Roy *et al.* (1997) maintaining that a multidimensional approach to design development is needed in order to create a solution which fulfills the user needs, standing a higher chance for a commercial success. For instance, a double-sided pen usually has markings for different thickness with graphics. However, this may not be the best solution. A competitor’s pen may use tapered shapes to indicate different thicknesses. This can be more immediately understood by the user than having to look at graphic markings. The competitor’s design feature offering more intuitive affordance to the user needs to be benchmarked by the designer for a better design (attack by ally).

The second major insights were found from the co-occurrence of ‘Fake-ally Opponent’ from 22 *Step Story Structure*. For the storytelling technique, fake-ally opponent is a character which seems to be an ally but is actually the opponent of the protagonist (Truby, 2008). Likewise, in the context of design, fake-ally opponent could take the meaning of a point where familiarity seems to be a safe choice but is actually the barrier for users adopting new value. This is due to the fact that fake-ally opponent had strong connections with the key factor of use-case scenario, ‘status quo’. The status quo, is the hardest competitor of all to overcome for users to employ new design due to the users’ tendency of not wanting change within his or her lifestyle (Aulet, 2015; Samuelson *et al.*, 1988). Therefore, fake-ally opponent has a possibility of taking an important role of building use-case scenarios to deal with issues of overcoming natural human and organizational inertia (Aulet, 2015). For example, a private bank wished to achieve higher efficiency in administrating services and lower service prices for their customers. Therefore, the bank wanted to package their customers’ separate services with their customers’ permission. However, it was found that the

customers felt the process of consenting on their newly packaged services cumbersome. The customers knew that they would be offered lower prices for the same services when consenting on the packaged services. However, they had to put additional time and effort into the consent process, they were not eager for change. This phenomena is the customers wanting to remain with the status quo. When this insight was revealed, the bank came up with the solution of automatically changing the customers' contracts and lowering the costs of the services (Stickdorn & Bisset, 2016). This solution lessened the burden of the users' decision making process. As such, when considering the users' tendency of making decisions for building use-case scenarios, it can result in opening up enhanced user-experience of new design value (Aulet, 2015; Samuelson *et al.*, 1988; World Design Organization, 2017).

The third major insights were found from the co-occurrence of 'Moral Decision' from 22 *Step Story Structure*. Moral decision for storytelling techniques is the moment when the protagonist chooses between two courses of action, each of which stands for a set of values and a way of living (Truby, 2008). For the design process, moral decision can be represented by the user's perception of a design which is affected by the user's social and political values. This is because moral decisions had a strong connection with the key factors of use-case scenario: 'user perception' and 'social and political values' in the co-occurrence analysis. It had been discussed in the scenario-building workshop that designers needed to have the understanding of the social and political values of the user in order for design to cater for the different areas foreign to the designer. For example, a nature park will need conservation in order for both the tourist and residents to continuously enjoy the environment. In order to make this possible, eco-tourism needs to be designed and promoted rather than concentrating on profit-making which may lead to harming the environment (Designmatters, 2017). This action may call for moral decisions from all sides including the macro-level business decision and micro-level design decisions. Hence, there is possibility for the moral decision to be used by designers to examine the social and political issues of the user and set a direction on the design solution based on these factors when developing use-case scenarios.

Conclusion

The research has identified the relationship between the storytelling technique and use-case scenario. It has also revealed the possibilities of the roles for each step of storytelling technique when developing use-case scenarios for design development. This is deemed a major contribution of the research since the existing literature largely focuses on the meaning of narrative for design, rather than directly linking storytelling techniques in a stage-by-stage perspective in the context of design development. The major findings of the research include: firstly, storytelling techniques can have a meaningful role as constructing guidelines for defining design features and how they could be integrated into user-experience through use-case scenarios. Secondly, the storytelling technique has the potential of helping designers to investigate how status quo can be anticipated in a journey towards developing design solutions. Thirdly, storytelling techniques can offer possibilities of incorporating social and political values of the user in order to create an enhanced user experience while building use-case scenarios. Overall, the storytelling technique has the potential of identifying user-related factors such as user's status quo and their social/political values as well as design features for offering new design values to target users. The results of this research can be used by designers in practice for building enriched contents of use-case scenarios, while not overlooking crucial factors such as the alternative or competitor's solution, the status quo bias and

social/political values of the user. The results can also help researchers investigating factors for building use-case scenarios. It is expected that, to gain more insight on the issues which are overlooked when building use-case scenarios through further research.

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Sukwoo Jang, is currently a researcher for Ph.D. in Industrial Design of Korea Advanced Institute of Science and Technology (KAIST) and holds a B.Sc. (2016) in Industrial Design from KAIST. He first became interested in storytelling in the context of design as an undergraduate at KAIST, working on user-experience projects of educational-industrial collaboration to develop user-scenarios for the speculative future. Currently, Sukwoo focuses on incorporating storytelling techniques in the design process in order for users to overcome their status quo bias and embrace new design in digital services.

Ki-young Nam

Dr. Ki-Young NAM is Associate Professor of Industrial Design, KAIST. He received BA (Hons.) and MA degrees in Industrial Design from Central St. Martins College of Art and Design, University of the Arts London. Subsequently, he obtained Ph.D. from Manchester Metropolitan University. Ki-Young worked as Faculty Research Facilitator at University of Lincoln, U.K. before joining KAIST where he established Designize Research Lab and engaged in research on various topics on design strategy and innovation, service design and design for policy. He has since published his research internationally in major design and design management journals and conferences for which he also regularly reviews research papers. Ki-Young also carries out government research and industry projects for major companies such as Samsung, LG and Lotte, and has advised the government in various capacities. He served as Editor-in-Chief for the Journal of Design Management. His current research interest includes design for social innovation and policymaking.