Young and Creative -
a Designerly Approach to Enhance Interventions in the Public Space

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***Abstract*— The public space is often offset for young people, where bold and complex routines usually may result in more or less functional solutions, sometimes even in unpleasant design. More than ever the future depends on the engagement of youth in the public arena, and as a counterweight to unpleasant design, youth creativity may have in some case an extremely powerful effect in urban environments. On the other hand, it is questionable how their surroundings are prepared and willing to learn and absorb their inputs. The concept of divergent and convergent thinking is used as a viable framework to address and understand youth creativity in public spaces. Using data gathered over several years from a group of skaters, the paper gives new insight in how they learn, create and share new knowledge and how they envision the possibility to design and change their surroundings. Finally, this paper argues for using a designerly supported framework to enhance youth's creativity and design in public spaces, based on collaboration and co-creation across technology, space and grounded on their creative mindset.**

Keywords-creativity; design thinking; divergent thinking; convergent thinking; public space.

I. INTRODUCTION

Why does youth interact with their surroundings in unpredictable ways? How can all the stakeholders who belong to the public space ecology be prepared and willing to learn and absorb their inputs? Skateboard, snowboard, punk milieu are some examples of youth searching for expression outside normal social boundaries. Their dialogue and narrative is often strong and visual (see Fig. 1), in some occasions addressing inequity in the society, problems with environment, urbanism and sustainability [1], but also pointing out new ways of defining and creating the way they want to live in the modern society. Their actions sometimes evolves and becomes fine art, where Banksy is a well known example of interventions in the public space [2]. The need of interventions and redesign in public space can also be argued as a reaction to unpleasant design, where the *blue light* in public toilets or public bench where it is impossible to lay down (also named anti-homeless) are some examples [3]. Even though youth's explorative efforts sometimes may be perceived as provocations, using a designerly perspective when understanding the way they wish to communicate in public urban space, may give new insight. On the other side of the provocative scale, for some group of less explorative western youth, Social Media (SoMe) has given them the possibility to meet, discuss and share in a digital space, in ways unthinkable a decade ago. Their discourses are often hidden from the public space or, at least they believe that, and therefore giving them the possibility to bring their voice to an arena more visible in the public space [4], may help who among them is not already engaged with creative activity in the public space. Defining youth require an adequate correctness difficult to achieve in this paper, therefore we choose to loosely address them as more or less provocative. Another reason to use a simplified scale is argued by the fact that using qualities to define youth ranging from kindness and rule-following attitudes, to risky behavior and disobedience [5], often accommodate only the adult world. How youth perceive themselves is often unclear and different for those outside, making it more difficult to *develop* solutions that may help them. This paper argues for a designerly based framework to enhance youth's creativity and design in public spaces, based on collaboration and co-creation across technology, space and grounded on their creative mindset.

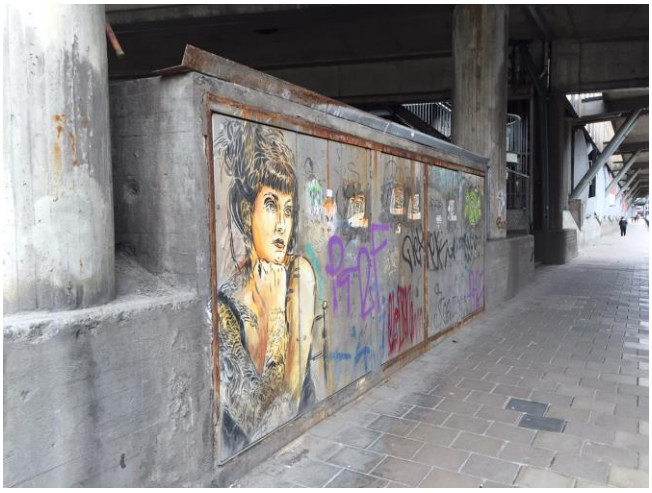

Figure 1. Intervention in the public space. Photo by Gasparini.

The structure of the article is as follows: Section II presents a framework of creative thinking in the light of convergent and divergent thinking. Section III uses a designerly approach when the core of creativity is addressed. Section IV contains the results of observations and

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interviews conducted with a group of skaters. Section V presents an enhanced framework, Section VI contains an analysis of the findings and argues for the use of a framework to enhance youth's creativity and design in public spaces, while Section VII concludes the paper.

II. A FRAMEWORK FOR CREATIVE THINKING

Several different theoretical approaches are possible in order to understand the human act of creativity. This pluralism of theories includes ten different main approaches [6], ranging from developmental and cognitive to problem finding and problem solving. Creativity as an act must be self-discovered and self-disciplined [7], while how a person is more or less "*sensitive to problems"* [8] is a critical factor when a problem needs to be found and solved. As a viable framework to address and understand youth's creativity in public spaces, the use of the concept of *divergent* and *convergent* thinking is interesting. In fact, both types of thinking are required if creativity shall be obtainable [9]. Table I shows attributes needed for divergent thinking [9], while Table II for convergent thinking.

TABLE I. DIVERGENT THINKING

	Divergent thinking
1	Being unconventional
2	Seeing the known in a new light
3	Combining the disparate *information*
4	Producing multiple answers
5	Shifting perspective
6	Transforming the known
7	Seeing new possibilities
8	Taking risks
9	Retrieving a broad range of existing knowledge
10	Associating ideas from remote fields

Overall, the ten attributes in Table I describes the thinking phases needed for a person to think outside their safe boundaries in life and thus change their perspective. This willingness to open to a broader understanding of the problem area and get more insight is crucial to produce unexpected combinations of the known. Table II shows the needs that are required to complete a creativity process, where the act of converging into a narrowed path and constrains are mandatory and help toward a viable solution of a problem or innovative result.

Creativity in groups also needs to be addressed when analyzing all the attributes in Tables I and II. For example, *social loafing* in creatives groups is a common problem [10], and in addition another undesired effect can emerge as risky and creative ideas tend to not be shared as they can be misunderstood [10]. This tension may result in conventional and polite exchange of ideas, often resulting in incremental changes only.

TABLE II. CONVERGENT THINKING

	Convergent thinking
1	Recognizing the familiar
2	Combining what "belongs" together
3	Being logical
4	Homing in on the single best answer
5	Reapplying set techniques
6	Preserving the already known
7	Achieving accuracy and correctness
8	Playing it safe
9	Sticking to a narrow range of obviously relevant information
10	Making associations from adjacent fields only

III. DESIGNERLY PERSPECTIVES ON CREATIVITY

A framework able to *enhance* youth's creativity and design in public spaces needs to address divergent and convergent thinking. Design Thinking (DT) [11], [12] may help find a suitable framework since both divergent and convergent thinking are two of the main factors in a DT process. The power of DT as an approach is the use of design methods to define more precisely the problem and, at the same time solve it. The elaborative forces present in a DT process are rapid prototyping, abductive thinking and empathy for the user perspectives. The result of an abductive thinking process is the problem-solving process aforementioned, which is based on an educated guess. In the DT process one uses actively the divergent thinking to bring inside the creative process as much insight as possible. This is especially necessary when one is creative in the rapid prototyping phase. This type of thinking is interesting in regards to the attributes in Table I row 6, 9 and 10, where knowledge is an important factor. One could derive from this designerly perspective that youth may gain substantial support if a new framework may give them access to more tailored knowledge. In a DT process, an emphatic relation to the users perspective is mandatory [13], even in Tables I and II this perspective is not explicitly defined. In regards to youth a further analysis on their emphatic behavior could gain better insight and define its role properly. During the DT process, numerous prototypes are produced, and the best one is chosen, based on an educated guess. This process can be explained as follow: the definition of the problem emerges simultaneously with the solution. In the convergent thinking process this fits with row 4 in Table II, "Homing in on the single best answer". Findings in [14] supports this view when youth is interacting with their surroundings, are framing questions and producing answers and solutions: "Comparisons indicated that the adolescents generated significantly more responses to the discovered problems than

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the presented problems.". This is in line with a DT approach and may give a stronger support for a designerly perspective on how divergent and convergent thinking are tightly linked with DT, and why perspectives from young people in this context may be relevant to look into.

IV. CASE STUDY

Skaters as a group are interesting as they interact with their context in various ways, always looking for new arenas to use and explore and a willingness to the recuperation of existing material [15] to construct skateboarding locations. The data used to analyze the framework was gathered in short periods of observation in vivo, throughout several years, using informal discussions and interviews of a group of five skaters living outside a large city in Scandinavia. The group of skaters in this case study was only male, a very typical composition of groups in the skating milieu. The boys also had a quite normal distribution of character, ordinary and polite youth from middle-class families. The observation of this group started in 2010 just at the beginning of their interest in the skate milieu. All five were around twelve years old, and had other sports activities beside the practice of skating. Their interest bloomed fast and after a short period, they were often visiting skateboard parks in their living area. They also used the skateboard as a means of transportation to the nearby school, which they attended. After a while, the municipality and a local sports organization built a large skate ramp outside the school. The group also used to make their own smaller ramps and used part of streets, sidewalk, and small stairs to train in the art of skating. As a reason for choosing the path into the world of the skaters, coolness [16] was the most prevalent. The parks in the surrounding area were of different type and build. One was of concrete inside an old plastic storage hall, turned communal, without any adult supervision, while others were more bureaucratically organized. The latter type of skateboard park was, of course, larger and had several demanding ramps, usually made of woods. The storage hall skating park, not far from their home, consisting of concrete ramps and obstacles both outside and inside the hall, was the preferred one by this group of youth, and when visiting, sharing ideas and tricks with other skaters were common. Skating to the nearby grocery store and eating together did not require great effort; neither did asking for tips and tricks, and the other skaters always replied positively. The social context and the feeling of being part of the milieu were as well important.

Inventing or reinventing unusual types of games was also part of the skate life they adhered to, an example was "The skate", where one skater of the group made a trick and the rest had to copy. The peculiar part was the type of tricks, it could be new ones, or just invented there and then. Another interesting point they mentioned was the dynamics inside the group, as they used it as a platform to socialize between them. A revealing observation for the author was the act of buying skateboards. The effort and engagement in the discussion about the quality of wheel, the form and quality of the wood board and the colorful design underneath, was crucial of being part of the group and a strong socialization force and a symbol of group expression. The skating interest also affected their preference regarding the type of games on the game console everyone had at home, and what kind of movie to watch on television and online on the YouTube platform. Observations revealed other interesting aspects of how they had built up a social context around their living. Driven by the success of international skaters, their plans for the future were also affected, and making "*a world of their own*", they could interact with the surroundings based on its own terms and, as they pointed out, it allowed them to combine ideas and meaning from the group in a fruitful way.

After some years, one by one, stopped being part of the skate group although they hung together in other contexts, like sport or online gaming. As a reason for dropping out, they explained, that after a longer period of skating, some of them had difficulty to catch up with the most endowed among them. As this article is being written also the last one has partially given up being a professional skater. The last discussion with members of the group was performed this year, and dealt with their participation in the skate milieu, how they first became interested and how, in retrospect, the knowledge about tricks and movement was learned among them.

The focus was changed now, more in the direction of how they perceived what happened, what was the dynamic, and what they learned from their skating period. What they remembered and praised now was the positive socializations they had and the willingness to share competence and cooperate when working with new tricks and ideas. One trick question the author managed to ask them was what adults could learn from the skating milieu and how to implement this insight in real life. They explained the necessity of sharing the nice experiences one finds when being part of a group so including as the one they were part of. Values like openness and belonging were the ones mostly rewarded. In regards to implementing their wishes of a more inclusive community and public space, they had some adequate plans. Building places for youth to meet and share their common interest, make it easier for youth to participate in sporting activities and bring more people on to the street to make the urban space less frightening, were good ideas of intervention and redesign in public space.

V. AN ENHANCED FRAMEWORK

Using observations and data presented in the case study and additional insight from several studies of youth made by the author in the context of school when adapting new technologies and their response to coolness in the learning context [16]–[18], an enhanced framework for divergent and convergent thinking is presented. The framework defines *possible* behaviors for both the provocative and the less provocative youth in Tables III and IV. Each attribute may give relevant knowledge about what we can learn from both the more or less provocative youth, how to support them, and eventually how to transfer this creative mindset to youth not already engaged in creativity and design efforts in public spaces. Row one (*Being unconventional*) in Table III fits well when addressing youth acting outside their boundaries,

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and seeing the known in new light, from row two, was present in the group of skaters in the case study, as they always were out searching and hunting for new experiences and finally elaborating them into novel skating competence.

TABLE III. DIVERGENT THINKING IN YOUTH

	Divergent thinking	***Tendency for behavior among provocative youth***	***Tendency for behavior among less provocative youth***
1	Being unconventional	Often in place	Difficult
2	Seeing the known in a new light	Often in place	Difficult
3	Combining the disparate *information*	Difficult	Often in place
4	Producing multiple answers	Possible	Possible
5	Shifting perspective	Often in place	Difficult
6	Transforming the known	Possible	Possible
7	Seeing new possibilities	Possible	Difficult
8	Taking risks	Often in place	Difficult
9	Retrieving a broad range of existing knowledge	Difficult	Possible
10	Associating ideas from remote fields	Difficult	Possible

For the provocative youth, row 3, 9 and 10 in Table III have in common a need for retrieving enough and relevant knowledge to accomplish a creative task and a possible indication that they may have problems in achieving that goal. Although observations from the case study show that the youth in the skate group often used several digital channels, peers and older participants of the milieu they belong to, to get information, the question is whether this effort is adequate. The area of interest, in this case skating, may be niche based and the attribute "*Associating ideas from remote fields*" (row 10) seems to require additional perspectives outside their range.

For the less provocative youth, the attributes in row 3, 9 and 10 may be more often in place, and a timely question could be if a cooperation between the less and more provocative youth could help the latter achieve their goal. Table IV, presenting attributes contributing to convergent thinking [9], is also interesting as the attributes seems to be more difficult for provocative youth to achieve, as the thinking phases are more close to a mature mindset. In fact, the final goal in schools is the concretization of the learning process in tests and exams, requiring primarily convergent thinking [19], and this paper addresses also the necessity to find out how youth manages to perform this form of thinking, as it is mandatory to accomplish creativity [9].

Rows 6, 9 and 10 in Table IV can be related to how the knowledge and the competence of a person need to converge and to be closely related to the problem area. Therefore this tension between the different tendencies the more or less provocative youth has, may have a specific effect especially in rows 6, 9 and 10, as it seems that a cooperation between them has fruitful results.

Finally, the attribute in row 8, (*Playing it safe*), is the only one with an obvious opposite value between the two different types of youth behavior, and have the inverse value in Table III (*Taking risk*). This attribute is quite interesting as it has an enormous impact, and implies that collaboration between youth with different behavior has to occur for creativity to take place.

TABLE IV. CONVERGENT THINKING IN YOUTH

	Convergent thinking	***Tendency for behavior among provocative youth***	***Tendency for behavior among less provocative youth***
1	Recognizing the familiar	Often in place	Often in place
2	Combining what "belongs" together	Often in place	Often in place
3	Being logical	Possible	Possible
4	Homing in on the single best answer	Often in place	Often in place
5	Reapplying set techniques	Often in place	Often in place
6	Preserving the already known	Difficult	Often in place
7	Achieving accuracy and correctness	Possible	Possible
8	Playing it safe	Difficult	Possible
9	Sticking to a narrow range of obviously relevant information	Difficult	Possible
10	Making associations from adjacent fields only	Difficult	Possible

In fact, collaboration and co-invention between youth with opposite provocative behavior has some testimonial stories in company start-ups like Apple, Google, and Facebook. Even today, innovative companies seems to be governed by a mindset rather than management rules.

VI. DISCUSSION

The introduction of the paper has pointed out several examples of motivation to support and enhance youth's creativity and design in public spaces. As mentioned youth often interact with their surroundings in unpredictable ways, while today's society is not prepared or willing to learn and absorb their inputs. One can observe youth staying and hanging out on the outside of stores or inside malls, or skate communities using concrete, wood and more to construct new infrastructure and reshaping the public space as a way to comment and address more or less functional solutions in urban life. Artists have also used the urban and public space as an arena to communicate their narrative and understandings of today's living in visual ways (Fig. 2) [20].

One relevant question to ask is, if the urban living of today is the one we need and wish for? Allowing interventions and creativity in the public space to be an

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accepted form of communication and not a counterculture, seems not so easy. A current example is how easily even Banksy interventions in the public space have gotten censored when addressing the unpleasant reality of the European refugee politics (see Fig. 3) [21].

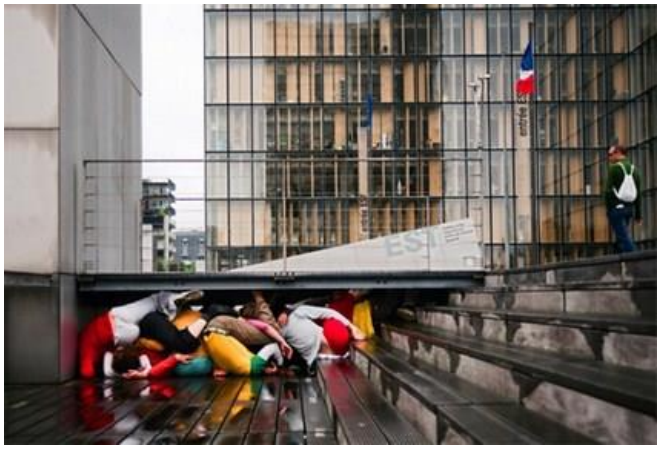

Figure 2. Companie Willi Dorner, Bodies in Urban Spaces [1]**[20]**.

Exclusion is also a form of censoring, with countless of examples and reducing the possibility young people have to intervene in the public urban space, represented by an example from a restriction of skaters in the Metro stations in Oslo (see figure 4). A final example of negative intervention in the public space is the attempt by a cultural institution in the Italian city of Bologna to dismantle different graffiti artwork and move them into an exhibition, often without permissions [22].

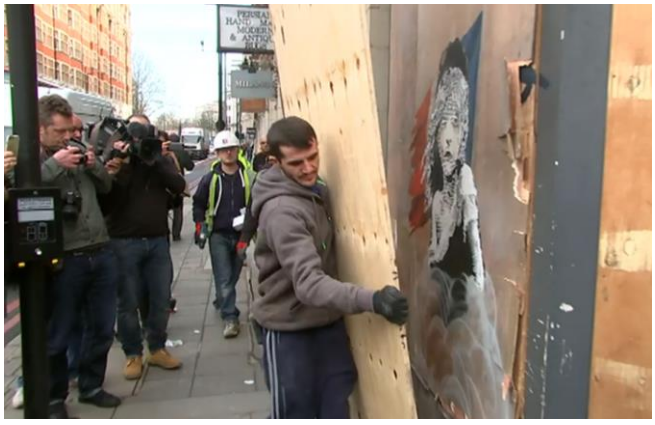

Figure 3. Banksy urban intervention being censored in London **[21]**. Photo from a news report by the Norwegian Broadcasting Corporation **[23]**.

The group of skaters in the case study lived and perceived the public and social space from a creative stand. For them, the environment was linked to the attributes of divergent and convergent thinking as part of a creative effort, where the Design Thinking approach gives a sound understanding. One of the tension between the interventions of the skaters and creativity in the public space is the temporal use of the space, while this volatile attribute is difficult to monitor the effects of [15]. Addressing the different elaborative forces in Design Thinking may have good perspectives to give youth a framework consisting of a platform to cooperate on and enhance creativity, bringing together the physical and digital world where youth act in, and finally to take advantages of their willingness to make changes in a creative way. This way of interaction can also resolve the issue with the temporal use of space.

A platform for digital interventions may be consisting of a group of services included in the SoMe sphere to allow them to meet, discuss and share, after all, the majority of youth has smartphones, and using those services in the public space should be quite normal. The platform should also support a bridge between the physical and digital space based on the Internet of Things (IoT) where light, sound, smell and the narrative of living in form of pictures, text and drawing, could act as a catalyst for interventions. In regards to technology, every day new tools, gadget and services are entering the SoMe and IoT market, and youth often tries to redesign them in unpredictable ways, and in unthinkable areas, for instance like libraries [24]. The Internet of Things has already opened new frontiers in regards to interaction in the public area, from controllable street lights in the aim of the sustainable city, to city art, as in the use of light drones in Austria [25].

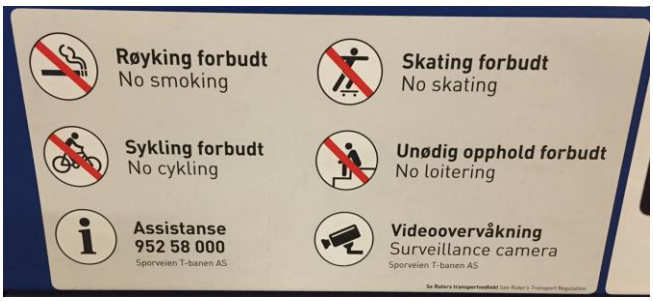

Figure 4. Restrictions in the Oslo Metro stations. Photo by Gasparini

A holistic approach to both SoMe and the IoT using Design Thinking gives a deeper understanding of how divergent and convergent thinking can be fully enhanced to support creativity among youth wishing to be engaged in civic matters. The case study shows their interest in contributing, whilst they did not have an easy platform to use.

However some new trend seems promising. Geo tags, Google street presents the public space with an augmented reality [26], and in this context the users has already allowed their own privacy be more open. The trend represents a willingness to share their locations. The use of Tinder, Facebook and others applications are examples of urban living connect with the digital word, and can be seen also as a digital layer that can be modelled and designed, and therefore promising for new solutions and possibility.

The elaborative forces of Design Thinking, for instance rapid prototyping, may take advantages of the tension in the creativity act when performed by the more or less provocative youth. Tables III and IV show they both need mentoring as it seems necessary in regards to knowledge acquisition, and knowledge transfer between them as the

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approach to gathering the correct insight is quite different. A platform to help them cooperate and enhance creativity should support a service where youth could get access to knowledge in an easy way. Using the possibility the Internet of Things and SoMe gives, the solution could function by using libraries, youth clubs, sports groups, schools, malls and more as an intersection between youth and access to knowledge, based on their creative mindset.

VII. CONCLUSION AND FUTURE WORKS

The paper proposed the use of a designerly based framework to *enhance* youth's creativity and design in public spaces, based on collaboration and co-creation across technology, space and grounded on their creative mindset. A platform where youth can share their interests and willingness in defining the way they want to live in the modern society should address how their divergent and convergent thinking functions. How skaters share information among them and their vision of the public space is an example of how young people are willing to share their insight and change their surroundings while the public space has a lack of platforms to engage them. Their willingness to make changes should be taken seriously and finally take the advantages of the impact they may have.

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