Kolb's Learning Styles of Centennial Stakeholders as Part of Transition Design Approach in the Social Laboratory Framework

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Abstract
Wicked problems are related by many interdependent factors making them seem impossible to solve. Some examples of wicked problems are education models, health care, income disparity, poverty, financial crises, and sustainability, among others. The analysis of wicked problems requires considering many aspects involved, in particular, the level and quality of stakeholder participation. If the stakeholders do not collaborate, it will not be possible to describe the wicked problem in depth, much less propose solutions. To explore the relationship with Centennial stakeholders, this research presents an exploratory, cross-sectional, and quantitative analysis of learning styles according to Kolb's theory for Centennial stakeholders in a Transition Design approach. The results show that there are some predominant learning styles, e.g., Accommodation (LS1) related to feeling and doing, and Diverging (LS3) related to feeling and watching. Then, these learning styles are related to the various practices developed in the Transition Design approach. The conceptual and methodological contribution of the research is also presented, as well as the managerial and policy implications in the framework of a social laboratory. Finally, it is concluded that, according to our survey, Centennial stakeholders have a balance regarding learning styles that must be considered as part of the design of the approach to wicked problems.

Keywords: Community & Society, Education, Sustainability & Society, Social Justice, Development & Political Movements

Introduction

Problem-solving has always been present in the history and development of humanity, going through different levels and stages due to the complexity of problems that evolve according to the reality of society. In particular, problems have reached wicked levels that seem impossible to solve due to the interdependence of variables that need to be considered when thinking about a concrete solution. Peters (2017) mentions that "the concept of wicked problems was developed in the planning literature to describe emerging policy problems that did not fit neatly into the conventional models of policy analysis used at the time". The latter was based on the work of Rittel and Webber (1973). Moreover, the formation of complex theories (social sciences) was led by the recognition of wicked problems in society at that time and served as a precursor to all the complex theories we know today. It could be said that wicked problems can't be molded into formulae or steps to be followed to find a way to their 'optimal' solution, that is, there is no good or bad solution to wicked problems. It's crucial to remark that not all problems are wicked, there is a big difference between a complex scaled problem and wicked level problems. Thus, contemporary problems are known for being classified as "wicked" because any logical or empirical approach tends to confront social and political actors and existing institutional regimes that must be respected (Termeer et al., 2019). Vermaas and Pesch (2020) identify six essential characteristics of the designer mindset needed to solve wicked problems:

1. Understanding problems beyond their description, having empathy with the people who live the problems, and looking for past answers and the reason for their failure.
2. Accept the need for a multidisciplinary team to ensure that problem definitions and responses consider a variety of approaches.
3. Promote the active participation of stakeholders, users, customers, or the sector of society in question.
4. Designers, like all participants, must add their perspectives by contributing their values, but as leaders of the project, they must decide on the specific interpretations or frames and possible directions of response.
5. The interpretations and directions chosen by the leaders must make the problems co-evolve.
6. Throughout the process, experimentation and feedback must be encouraged.

Transition Design

According to Pujol and Valladolid (2011), the designer is an agent of change, producing interdisciplinary and transcultural communication models that allow the global market to collaborate with both industry and users, so it is appropriate to consider a methodology that responds to this dynamic. It is estimated that some methodologies (e.g., the projectual method, the systematic method, and design thinking, among others) do not consider in a mandatory way aspects of sustainable development of products, services, spaces, and systems as a part of solving complex social problems. In this way, the Transitional Design methodology considers the assessment of sustainability as a relevant factor in the selection of a potential solution to a problem. As a multidisciplinary methodology, it can be applied to many complex problems that require thinking from different sectors and disciplines, such as education, architecture, engineering, industrial design, politics, ecology, public health and safety, art, graphic design, urban planning, the food sector, digitalization, anthropology, communication, and ethic (Barbara & Scupelli, 2021). The transition design framework is shown in Figure 1.

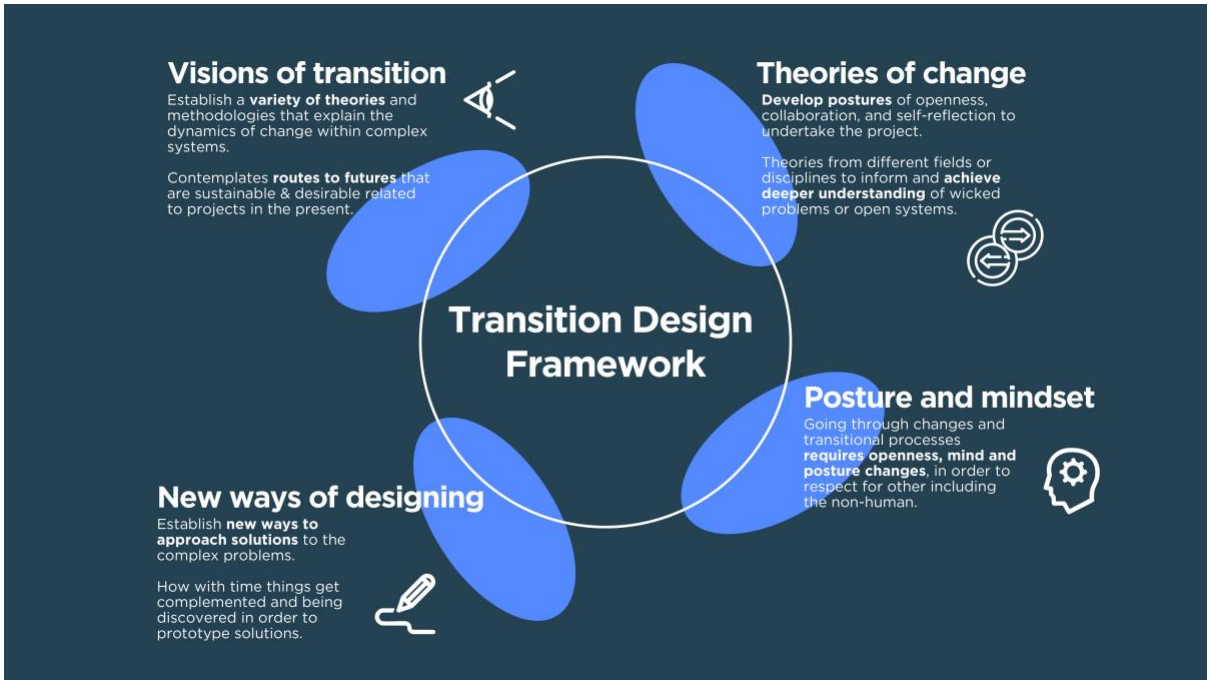

Figure 1: Transition Design Framework

In particular, Irwin (2015) indicated that the transition methodology relates to a transition vision, theories of change, attitudes, and mindsets, and new design alternatives for products, services, and experiences, among other types of design.

Kolb's Learning Styles

According to Gooden and colleagues (2009), Kolb's Learning Styles (LS) inventory has two major hemispheres depending on how the individual being studied perceives and interprets information concerning to Experiential Learning (EL) Cycle. In particular, Abstract conceptualization (EL3) and concrete experience (EL1) are the ones responsible for describing how individuals perceive information, while reflective observation (EL2) and active experimentation (EL4) study processes or interpretations. The above is related to the type of learner, whether abstract (analytical and logical), concrete (examples), reflective (observing before judging), or active (extroverted to experience), all related to the four quadrants of Kolb's Learning Styles (see Figure 2).

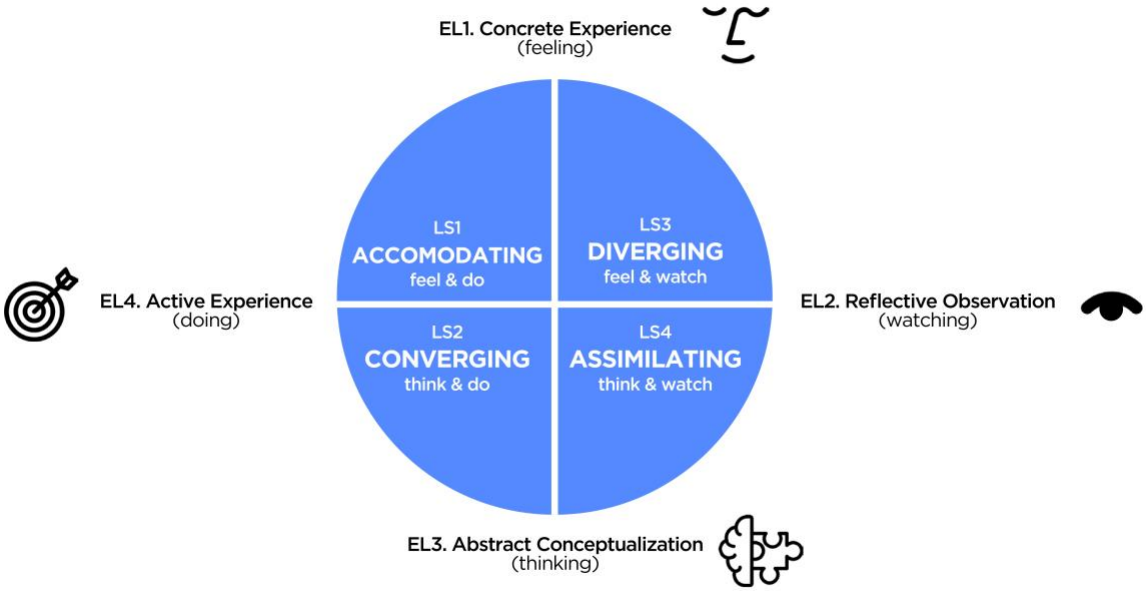

Figure 2: Kolb's Learning Styles Inventory

The four types of Kolb learning styles are described below:

- Divergent (combination of concrete experience and reflective observation). Individuals with this learning style like to generate a wide range of ideas and gather information. They also have imaginative abilities encouraging creativity and viewing situations from multiple perspectives (Kolb 1981).
- Assimilators (Combination of Abstract Conceptualization and Reflective Observation). Assimilators can understand and formulate information logically and concisely. They focus more on abstract ideas and concepts and are therefore very good at creating models and defining problems. They are also very good planners (Kolb, 1981).
- Convergers (combination of abstract conceptualization and active experimentation). Thus, convergers learn by understanding concepts in an active form of learning and are very attentive to detail (Kolb, 1981).
- Accommodators (combination of concrete experience and active experimentation). Accommodators, like convergers, have elements of active experimentation, and this takes an active form of learning. Accommodators rely heavily on people for information in solving problems and like to take risks, so they will seek out new approaches to complete a project (Kolb, 1981).

On the other hand, Kolb's learning styles are usually used in a student-academic framework, but learning is not only an academic skill, but it is also used for everyday tasks and in a complex context, problem-solving. In general, it is quite common to associate visual learning with millennials, and thanks to today's technology, this generation is characterized by being a visual learner. Generation Z has a focus on respect and living in harmony with others, focusing on their own experience and reflection on what they've learned or want to learn, and applying it to their criteria in the decisions they make. At the same time, Centennials are known for their immediacy and avoidance of big processes. Centennials also tend to look for shortcuts to get things done quickly.

Social Laboratory

The social laboratory allows for the coexistence of different opinions in time and space, which, depending on the level of people's participation, allows for the creation of ideas and, subsequently, innovation in the social sector. These laboratories are democratic meeting places between citizens, academics, the business sector, and government representatives (El Colef, 2021).

In general terms, social laboratories can have different social impacts, some quantifiable and others not. For example, the processes of creativity and innovation in social laboratories can lead to the transfer of knowledge and technology to certain segments of the population, preferably vulnerable segments. Various inclusion and diversity initiatives can also be generated that address social problems simultaneously.

In addition, social labs can support the entrepreneurial spirit of citizens, which contributes to economic empowerment. Indirectly, social labs can help the supply chain of various companies, i.e. corporate issues related to suppliers can be addressed to strengthen regional economic vocations (Romero-Frías & Robinson-García, 2017).

Social laboratories can also serve the organization in which they are created, i.e. be internal laboratories of organizations, as is the case of the innovation laboratories of the United Nations International Children's Emergency Fund (UNICEF Innovation Lab), which is part of the Fund's Innovation Office and works with collaborative networks in more than 190 countries to iterate and generate scalable solutions that have a positive social impact for this and future generations (Innovation Office UNICEF, 2024).

Methodology

An instrument was developed to measure the learning intentions and styles of 351 people belonging to Generation Z (Centennials). The learning styles are based on Kolb's learning theory. The instrument used quantitative coding using the Likert scale to measure the statistics of responses to 12 statements, 4 statements for each Kolb learning style. In particular, the instrument was validated through internal and external mechanisms before its final application.

Results and Analysis

Specifically, the results show that Kolb's learning styles are predominant in the Centennial Generation, such as Diverging (LS3), which is related to feeling and observing. The least predominant Kolb learning style is Assimilating (LS4), which is related to thinking and observing. In the same context, the Kolb learning styles of Accommodating (LS1), related to feeling and doing, and Converging (LS2), related to thinking and doing, have a regular importance in the Centennial Generation. On the other hand, understanding that Generation Z (Centennials) covers a period of birth years, in this particular year, 2024, individuals from 14 to 30 years old would be classified as Centennials. In light of the above, statistics show that the Divergent Learning Style (LS3), which is associated with feeling and observing, is also a predominant learning style among Centennials between the ages of 14 and 30. However, it is also true that non-predominant learning styles change with age.

Pedagogical Implications

Given the above findings and the fact that Centennial Stakeholders are part of the transition design approach in the Social Laboratory framework, it is important to highlight some pedagogical implications and considerations to better address the description of the complex problem as well as the process of proposing potential solutions. In particular, the pedagogical implications refer to the strategies and tools used by the facilitators (teachers in the conventional context) to guide the sessions and facilitate the collective learning of the Centennial stakeholders (students in the conventional context) within the social laboratory framework. Therefore, some pedagogical implications are described below.

First, since LS3 is the predominant learning style, i.e., the learning preference of individuals is more related to feeling and observing, learning activities and objectives must be designed to prioritize this learning style. For example, you can start with a concrete experience (feeling), either through audiovisual material, case studies, testimonies of people, as well as fieldwork that allows people to be sensitized. During and after this concrete experience, it is necessary to do a reflective observation (watching). In particular, the reflective observation of the new experience (concrete experience) implies that Centennial stakeholders must reflect on the new experience based on their previous prejudices and knowledge. In particular, attention must be paid to the inconsistencies between the concrete experience and personal prejudices. This first pedagogical implication requires a detailed design by the working team that makes up the social laboratory, using the Transition Design methodology, as well as the correct selection and design of learning objects.

The second pedagogical implication is that while there is a dominant learning style, this does not mean that the other learning styles are not important. The reality is that a single learning style cannot define a Centennial stakeholder but rather is a mix of styles and learning preferences. Therefore, when implementing the Transition Design methodology within the Social Laboratory, the use of learning objects and activities that involve the rest of Kolb's learning styles must also be considered.

Managerial and Policy Implications

The above findings also have or should have, management and policy implications in the context of the Social Laboratory. Thus, it should be considered that the internal and external processes related to the activities of the social laboratory must be designed for the Centennial Stakeholders. This means that although there are other generations in society, such as baby boomers, millennials, etc., whose participation in the Social Laboratory is not limited, it is necessary to take administrative and political measures to take the Centennial Stakeholders into account to a greater extent. Otherwise, the participation of the Centennial Stakeholders could be affected in some way.

Conclusion

This research is concerned with the analysis of the learning styles and preferences of the Centennial stakeholders within the framework of Kolb's theory. This analysis is carried out as part of the design of a social laboratory that uses the Transition Design approach to analyze various complex problems and the path to their potential solution. In general, the results obtained provide an interesting starting point for the design of activities based on the learning styles of Centennial stakeholders. Considering the aforementioned, this research work has

certain limitations, the most important of which are the evolution of the perspectives of the learning styles of the Centennial stakeholders. On the other hand, this research work has certain limitations, the most important of which is the evolution of the perspectives of learning styles of the Centennial stakeholders. Still, even so, the results are a good starting point. Finally, the results of this research can be used by any educational and productive sector, both public and private, as long as the main market segment is the Centennials.

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