

# Mentality Shift in Inclusive Design: From Physical to Psychosocial Inclusion

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**Abstract:** With the dual demographics of people with disabilities and an aging population, inclusive design has been recognised as a design application for designing products, environments and services. Also psychosocial aspects have been used for increasing quality of life in many fields of studies. However, it is not thoroughly and fully applied yet in the field of inclusive design. It is because, the physical aspects have been mainly focused rather than psychosocial aspects in the existing conventional inclusive design principles and applications. With this limited information of the concept of psychosocial aspects in the field of inclusive design, an initial definitions and frameworks for psychosocial inclusion were identified from literature analysis in this research. This initial definition and framework were then developed through an interview study. Hence, the developed definition and framework for psychosocial inclusion in the field of inclusive design were suggested. These definition and framework will be refined and verified through a number of research studies such as field study and Delphi interview study in later stages. The final definition and framework may play a potentially crucial role in the future of inclusive design.

## 1 Psychosocial in Inclusive Design

The dual demographics of people living with disabilities and aging have brought social issues such as social exclusion, inequality and isolation (Brynn, 2013). In this social trend, the importance and role of inclusive design have been raised for better quality of life in both social and design context (Coleman et al., 2007; Fletcher, 2011) with considering both physical and psychosocial aspects.

Despite the importance of psychosocial aspects in the field of inclusive design, there is a limited understanding of psychosocial aspects in inclusive design that is identified from illustrative literature review. The aspects of physical inclusion or exclusion, usefulness and usability have been focused rather than social or psychological aspects in the conventional applications and principles of inclusive design (Steinfeld, 2013). In this paper, with this lack of understanding of

psychosocial aspects, such non-physical inclusion including social and psychological inclusion is referred to as *psychosocial inclusion*. Therefore, a clear definition and framework are needed as the first step to explore the concept of psychosocial inclusion for the future of inclusive design. With this goal, the aim and objectives of this study were established as being exploration and development of the concept of psychosocial inclusion in the field of inclusive design by:

- exploring the context, importance and potential role of psychosocial aspects in inclusive design
- synthesising existing relevant definitions and frameworks of psychosocial inclusion from different fields of studies to build an initial definition and framework for psychosocial inclusion in the field of inclusive design
- developing and verifying the initial definition and framework through a number of chosen research studies.

Also, potential contributions to knowledge gains through this research may include:

- enhancing the knowledge of psychosocial aspects in design
- Propose a clear definition for psychosocial inclusion in the field of inclusive design.
- Suggest a clear framework for potential users such as designers, researchers, tool developers and policy makers to adapt the psychosocial aspects of inclusive design in their areas.

## **2 Data Collection and Analysis**

### **2.1 Literature Analysis**

As mentioned in the previous section, there is limited literature of psychosocial inclusion in the field of inclusive design. Considering this limitation, various fields of studies such as psychology, sociology, healthcare and design were illustratively reviewed. From this, 31 papers in field of design and 111 papers in field of non-design were selected. From this data selection, the existing relevant definitions and key elements to psychosocial inclusion were collected and analysed by using multiple coding analysis methods, which are domain and taxonomic coding and process coding. These coding methods are effective applications for categorising key elements of collected data (Saldaña, 2012). The initial working definition and framework were identified from the coding analysis.

### **2.2 Field Study I - Thematic Coding Analysis of Interview Study**

An interview study with 39 disabled people with mobility difficulties was performed to develop the initial working definition and framework identified from

literature analysis. Interviewees were asked about their life experiences in relation to physical and psychosocial issues. The interview transcripts were thoroughly analysed by an individual researcher with initial thematic coding method and Nvivo 10 software. After this, verification was achieved by re-coding undertaken by four experienced researchers. This multi coding analysis process provided multiple perspectives of the data from different researchers (Popay et al., 1998).

## 3 Findings

### 3.1 Working Definition

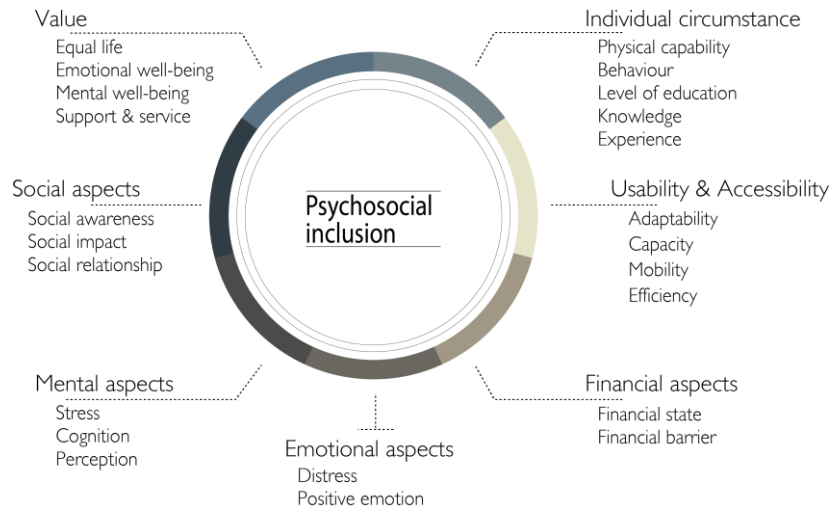
A working definition was created based on the results of literature analysis. In the literature analysis, the existing definitions of psychosocial inclusion and relevant terms to the psychosocial inclusion were collected and combined. Key insights from the result of this data collection and analysis are as follows:

- Human well-being for better quality of life is a crucial goal for psychosocial aspects.
- The physical, mental, emotional and social aspects are the main considerations in psychosocial aspects for quality of life.

With these insights, the created definition of psychosocial inclusion in the field of inclusive design is: *Provision of opportunity by considering both psychological and social factors for better quality of life.*

### 3.2 Working Framework

A working framework was proposed based on synthesising analysis between the literature analysis and the field study I (see Figure 1). There are seven main aspects in the framework, which contain a number of factors. Each factor has several elements which provide more details of each factor and seven aspects.



**Fig. 1** Working framework for psychosocial inclusion in the field of inclusive design

### 3.2.1 Individual Circumstances

This factor is about personal circumstances or situation. The sub factors are physical condition, behaviour, level of education, knowledge, experience and state of employment. They also contain some individual details such as age, sex, functional abilities, sense of control and health condition. These individual circumstances are a crucial factor that should be considered in inclusive design to figure the issues of stakeholders.

### 3.2.2 Usability and Accessibility

Usability and accessibility includes some physical sub factors such as adaptability, capacity, mobility, diversity and efficiency. These sub factors include functionality, practicality and durability as key elements.

### 3.2.3 Financial Aspects

The financial aspects are the one of the causes of psychosocial inclusion or exclusion. This factor contains individual or social economic states and any financial barrier to individual, group or society.

### 3.2.4 Emotional Aspects

Emotional and mental aspects are part of psychological aspects which is related to people' behaviour, emotion, mental and social aspects. With this, these aspects were categorised individually. Emotional aspects contain emotional elements such as anxiety, fear, loneliness, comfort and confidence. These aspects

### 3.2.5 Mental Aspects

In the mental aspects, there are various mental elements which are related to stress, cognitive and perceptual factors such as different types of mental stress, independence, reliance and locus of control.

### **3.2.6 Social Aspects**

Social awareness, social impact and Social relationship were categorised in social aspects. These factors include various issues and elements such as social participants, social network, social service and support, public attitude and discrimination which are crucial psychosocial factors.

### **3.2.7 Value**

Value includes the impact of psychosocial factors which are equal life, support and service, emotional and mental well-being. They are determined by several key elements such as happiness, self-esteem, freedom, privacy, family support and social service.

## **4 Discussion and Conclusion**

The importance of quality of life in psychosocial aspects has been identified from the literature analysis and thematic coding analysis of mobility interview study. From the perspective of inclusive design, quality of life is also one of crucial goals. Therefore, it is clear that the definition and framework for psychosocial inclusion could play an important role in the field of inclusive design to provide better quality of life. However, the working definition and framework suggested in this paper are needed to be verified and validated through the chosen studies.

One of the next studies is field study II that is a shopping and psychosocial inclusion project for undergraduate and master design students to enhance elderly shoppers' shopping experience in the supermarket. The student designers will suggest tangible and intangible design ideas through a co-design workshop with elderly shoppers. Finally, the interview with selected students and elderly shoppers and observation of shopping experiences of elderly shoppers will be performed to identify psychosocial aspects. The results of these interview and observation studies could be crucial data to develop the working definition and framework.

Delphi study has also been chosen as the future work. This method is an iterative multiple stages of interview study with selected experts (McKenna, 1994; Lynn et al., 1998). In terms of this interview type, the selection of experts is one of the most important factors for successful study design. Therefore, a stakeholder model was created to identify potential field of expertise, then a number of personas based on each stakeholder were created (see Figure 2). The personas were used as key criteria for selecting appropriate.



**Fig. 2** Stakeholder model (above) and examples of personas (bottom) of psychosocial inclusion for Delphi interview study (<http://tinyurl.com/pw7vhoh>)

In the first round of interviews, the selected experts will be mainly asked about their opinions on how important psychosocial aspects in inclusive design are and what contexts of existing psychosocial aspects in their own areas are to explore the general ideas of psychosocial aspects. In the next round, the working definition and framework will be provided in order to be developed through data from interviewees' expertise and experience.

From these verifying processes, a valid definition and framework for psychosocial inclusion in the field of inclusive design will be suggested after using research triangulation between literature analysis, Field studies and Delphi interview studies.

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