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Abstract

This study explores how academic knowledge is transformed to innovative ideas, designs and products in the context of interdisciplinary design process and industry-university relations. In this sense, it aims to examine interactions among researchers from various disciplines and how this process is affected by the dynamics of industry-university relations which would bring complexity of varying expectancies, perspectives, values and interests. Interviews are conducted with 10 faculty members from different departments who are involved in Middle East Technical University Design Factory (METU DF) which is an interdisciplinary research and education center for innovative product development and rapid-prototyping. Analysis indicated themes of limiting effects of disciplinary boundaries, lack of interdisciplinary interactivity in Turkey, importance of reaching a common language among researchers, intermediary role of state institution, conflict between academic and industrial perspectives, power of firms to impose their problems, and connections between economic needs of Turkey's industry and short-term strategies of firms.

Introduction

- Developing a common language, goal and notion of a design project is important (Wagner et al., 2011, *Jrnl of Informetrics*, 165).

Commonality is interrelated with participation and interaction (Kaygan & Aydınoğlu, 2017, *Interntnl Jrnl of Tech and Dsgn Edctn*, 28(3)).

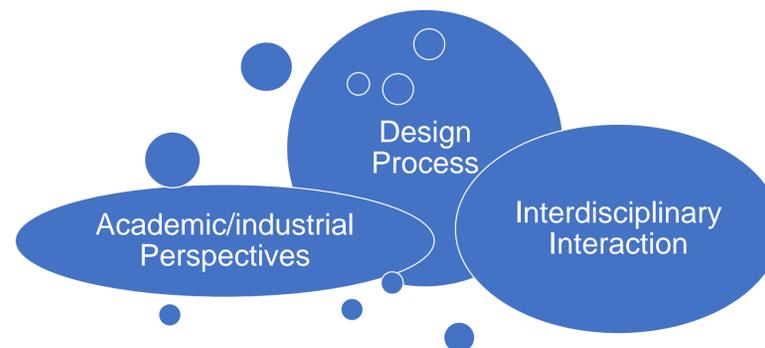
- Failing to achieve commonality is one of the crucial reasons for possible conflicts during interdisciplinary interactions between designers and engineers (Pei, Campbell, & Evans, 2010, *CoDesign*, 6(3)).
- Constitutive force of expectations in terms of directing activities, facilitating investment or offering shared understanding for roles, duties, opportunities and risks (Borup, Brown, Konrad, & Lente, 2006, *Tech Anlys & Stratgc Mngment*, 18(3-4)).
- Change of expectations across different groups such as scientists, entrepreneurs, politicians or public.

Research Question

How is academic knowledge transformed to innovative ideas, designs and products in the context of interdisciplinary design process and industry-university relations?

Research Design

Semi-structured interviews are conducted with 10 academics from various engineering departments and industrial design.



Data Analysis

Interdisciplinary Interaction

- Limiting effects of disciplinary boundaries: Dependency on certain industry, prejudices towards other disciplines, lack of creativity, increased specialization or one-sided perspectives.
- Lack of interdisciplinary interactivity in Turkey: Economic and industrial capacity of Turkey, discouraging effects of institutional regulations and culture of insecurity
- Common language: Importance of using concepts in similar manners to arrive at effective interaction

Interaction between industrial and academic perspectives

- TUBITAK's regulations encouraging firms to use researchers mainly to get funding.
- Conflict of academic and industrial perspectives or expectations: Educational aspects or innovational scale of research compared to efficiency/profit in a short time
- Problems aiming to develop productivity of firms through adapting certain technologies rather than projects which plan to create innovative designs or products.
- Economic and technological needs of industry in Turkey in connection to short-term strategies of firms.

The Final Map

