

Relation between Context Science Education, Motivation, Career Anchors and Outcome of Students in Secondary School: a Self Determination Theory Approach

Annemieke Vermeijlen, Wendy Sanders, Perry den Brok
Eindhoven School of Education
Van Maerlantlyceum Eindhoven

Introduction

Context-based learning approaches have been implemented in school science over the last 40 years as a way to enhance students’ interest and motivation, and to provide more interconnected content knowledge. Secondary school students are more likely to choose technology when they have positive experiences in technology, have competence in science. These are the needs (autonomy, competence and relatedness) of being motivated according to Deci and Ryan¹ describing the Self-Determination Theory. Furthermore, someone’s decision to choose a career in Technology depends also on the careers anchors according to Schein^{2,3}. However, current careers in Technology are insufficiently associated with values such as creativity, service, autonomy and entrepreneurial. Therefore it important to emphasise these values in the use of contexts in science education. This research will focus on the relationship between the use of a context, the motivation of a student and the outcome. How the use of the context is experienced is depending on the causality orientation of the student. At the same time a relation between the use of a context and the career anchors and type of motivation is investigated.

Research Questions

- What is the relation between context and their use in education and the needs of a student?
- What is the relation between the needs and the career anchors?
- What career anchors of students are stimulated with the contexts and the use of contexts?
- What is the relation between the causality of a student and the context and the motivation for science school subjects?
- What kind of adjustments are necessary to motivate students more for science?
- What is the role of the teacher in this process?
- Have the attitude, motivation and career choice been changed after the adjustments in the use of contexts?

Tabel 1: Timeline Postdoc Research september 2014 – september 2016

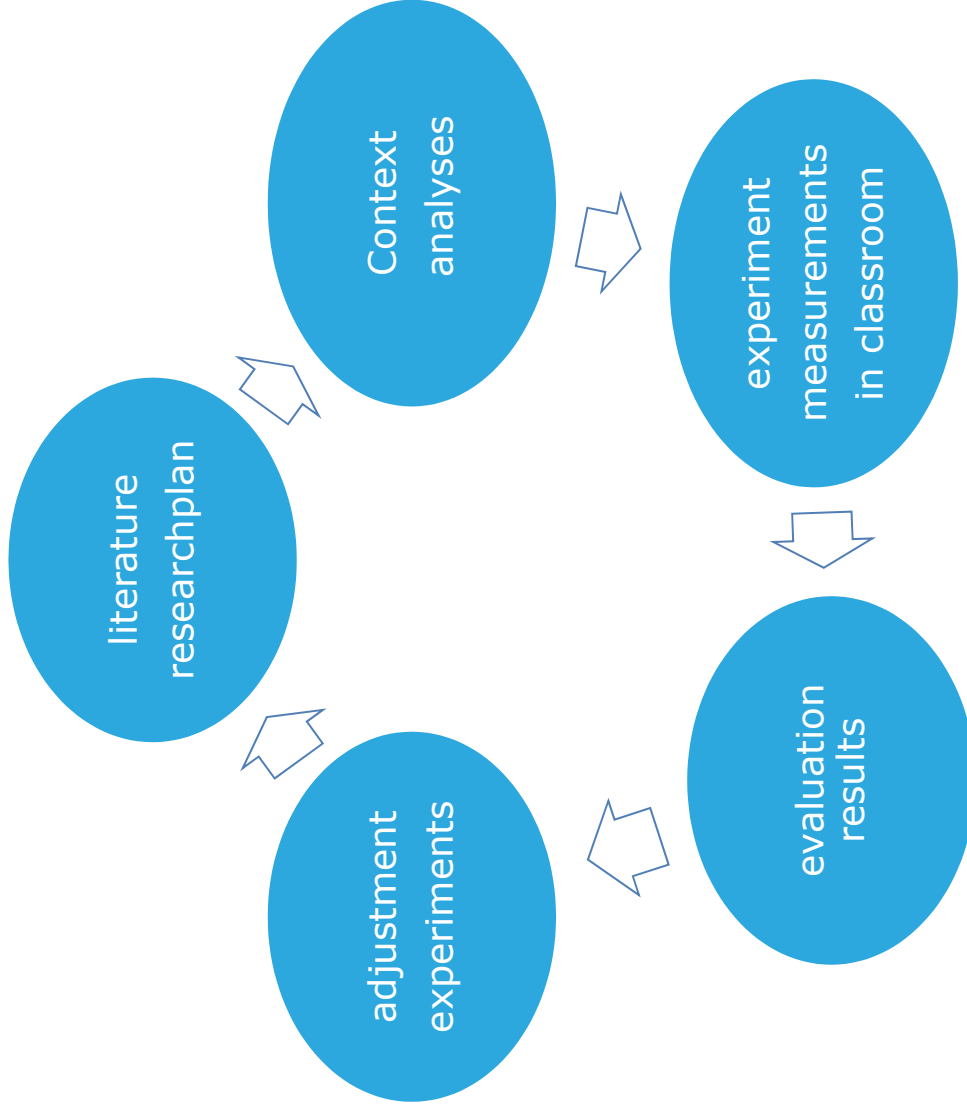
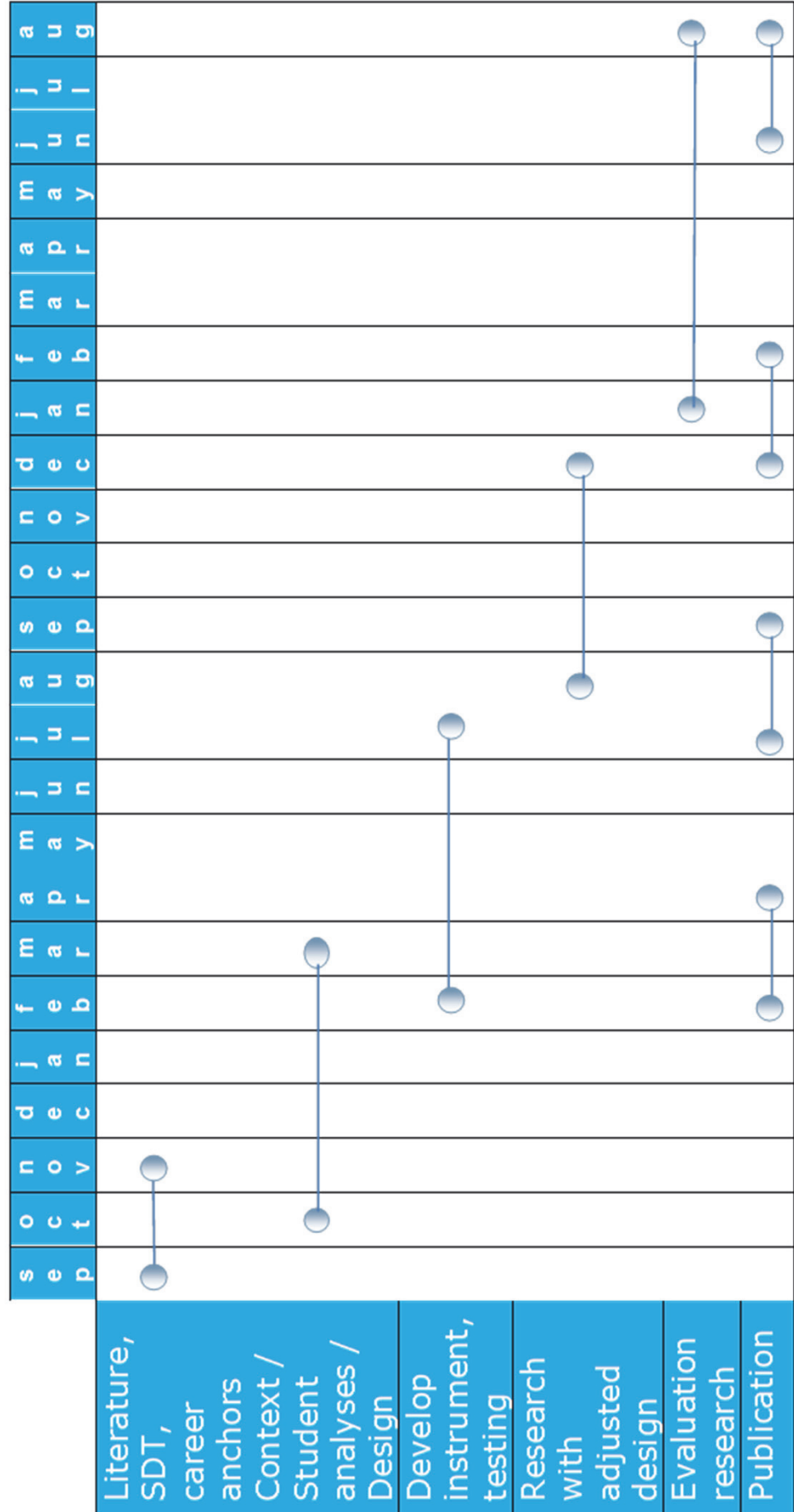


Figure 1: cyclic steps in the research design

References

¹Deci E, & Ryan R. (2000). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. Contemporary Educational Psychology, 25, 54-67.
²Schein E.H. (1975). How career anchors hold executives to their career paths. *Personnel*, 52 (3), 11-24.
³Klapwijk R., & Rommers E. (2009). Career orientation of secondary school student (m/f) in the Netherlands. *International Journal of Technology and Design Education*, 19(4), 403-418.
⁴Vansteenkiste M., Sierens E., Soenens B., Luyckx K., Lens W. (2009) *Motivational Profiles from a Self-Determination Perspective: The Quality of Motivational Matters*, Journal of Educational Psychology, 101 (3), 671-688.

Model of motivational processes in science education

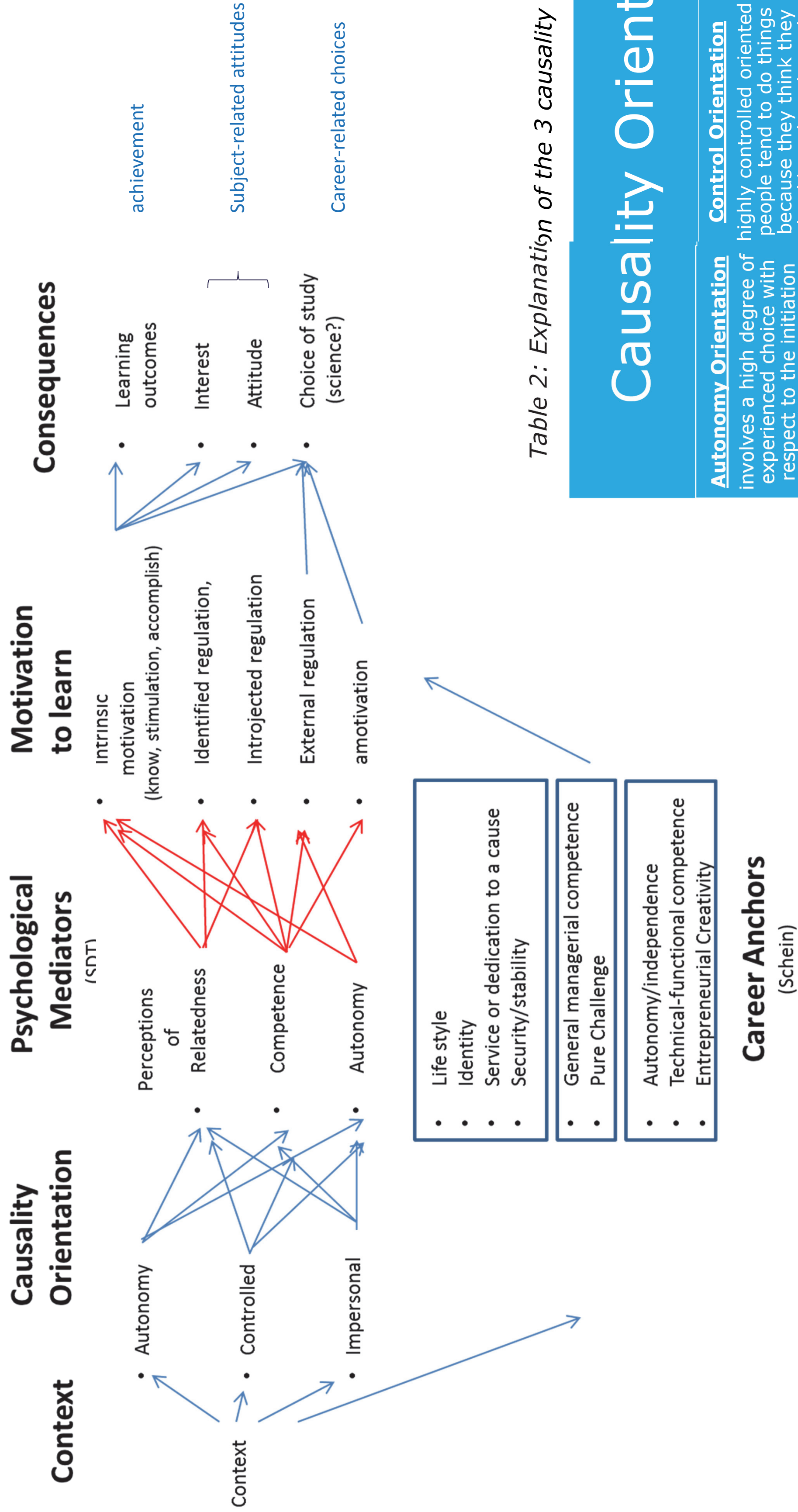


Table 2: Explanation of the 3 causality orientations⁴

Causality Orientations		
Autonomy Orientation	Control Orientation	Impersonal Orientation
Involves a high degree of experienced choice with respect to the initiation and regulation of one's own behaviour; organize their actions on the basis of personal goals and interests rather than control and constraints	highly controlled oriented people tend to do things because they think they should, and tend to rely on controlling events, such as deadlines or surveillance to motivate themselves	People experience their behaviour as being beyond their intentional control. They experience tasks as being too difficult and/or comes as being independent of behaviour

Table 3: Explanation of the different types of motivation

Extrinsic Motivation		Intrinsic Motivation
External Regulation	Introjected regulation	Identified Regulation
External rewards/punishments and expectations i.e.. Bonus ("must")	Activity is governed by external pressures; internal rewards and e.g. guilt, anxiety, proud ("should")	The activity is performed freely but represents a means to an end. (personal important)
		When the identified regulation has been incorporated to the self, rated to the self, to achieve a personal goal)
controlled motivation		Intrinsic Motivation
		The activity is fun, pleasant and gives satisfaction towards know, accomplishment and experience stimulation
		Autonomous motivation