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Theoretical and Methodological Framework for Measuring the Robustness of Social Institutions in Education and Training

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Abstract

Social institutions are relatively stable patterns of behavior or joint action that help overcome fundamental problems and perform a function in society. The robustness of such institutions underlies their effectiveness at solving problems, but such robustness is difficult to assess. Building on different institutionalism approaches, this paper first develops a theoretical framework of social institutions. This framework combines Miller's properties of social institutions—function, structure, culture, and sanction—with a temporal dimension (i.e., level of institutionalization) and a spatial one (i.e., scope of the institution). Our methodological approach then shows how scholars can use the framework to assess the robustness of a given institution. Second, this paper applies that framework to the social institutions in education and training programs. To identify functional equivalents across such programs in all contexts, we elaborate on field-specific theoretical concepts. By applying the methodological approach, scholars can assess the social institutions carrying out those functions. We hypothesize that robust social institutions are robust in all properties and dimensions, and that robust education and training programs are composed of individual robust social institutions.

Keywords: Social institutions, new institutionalism, education and training, vocational education and training programs, functional equivalents

Graphical Abstract

Theoretical and Methodological Framework for Measuring Social institutions in Education and Training

Theoretical Foundations

Theoretical Framework

Methodological Approach

Institutionalism theoretical foundations

Turner (1997)
Miller (2019)

Institutional properties

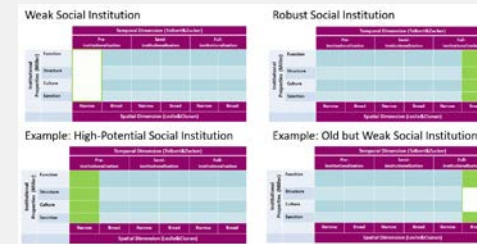
Tolbert & Zucker (1999)
Leslie & Clunan (2011)
Scott (2008)

Temporal and spatial dimensions; formality

Relationship between conceptual derivations of social institutions

	Temporal Dimension (Tolbert&Zucker)					
	Pre- Institutionalization		Semi- Institutionalization		Full- Institutionalization	
Institutional Properties (Miller)						
Function						
Structure						
Culture						
Sanction						
	Narrow		Broad		Narrow	
	Broad		Narrow		Broad	
	Spatial Dimension (Leslie&Clunan)					

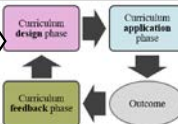
Generic approach for measuring social institutions' robustness in general



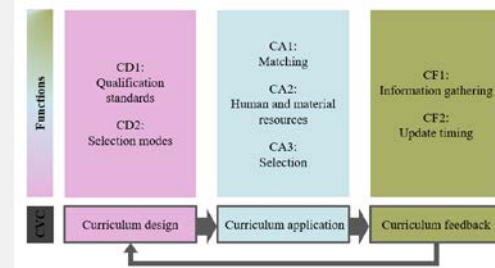
Field-specific theoretical foundations

Rageth & Renold (2019)

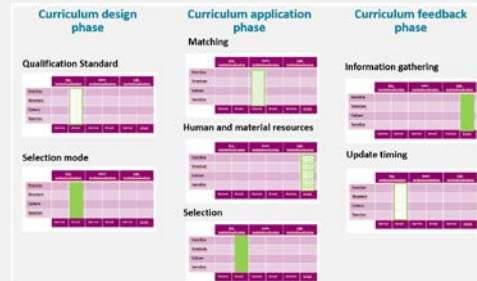
Curriculum Value Chain (CVC)



Identification of social institutions via functional equivalents in education and training



Field-specific approach for measuring social institutions' robustness in VET



Empirical level (future research): Measuring social institutions' robustness

1. Introduction

Social institutions are relatively stable patterns of behavior or joint action, which help overcome fundamental problems and are geared towards a function in society (Turner 1997; Miller 2019 [2007]). Although there is a wealth of literature on social institutions (e.g., Meyer and Rowan 1991; DiMaggio and Powell 1983; Tolbert and Zucker 1999; Scott 2001 [1995], 2008; Abrutyn and Turner 2011; Leslie and Clunan 2011), they remain difficult to measure and compare across contexts. This paper develops a theoretical framework and methodological approach for assessing social institutions.

First, we use concepts derived from sociological theory and philosophy—the quality of social institutions’ properties (i.e., their structure, function, culture, and sanctions; Miller 2019 [2007]), their development over time (Tolbert and Zucker 1999), and their representativeness (Leslie and Clunan 2011)—and combine them in one theoretical framework that helps us understand the conditions under which robust social institutions evolve. Based on this theoretical framework, we further develop and demonstrate a generic methodological approach for assessing the robustness of social institutions in any field. We hypothesize that institutions are more robust when they are further along the institutionalization process, have a higher representativeness, and have clearly defined properties. For an institution to be effective at its function, we hypothesize that all of its structure, culture, and sanctions must be robust.

Second, we demonstrate the application of this generic theoretical framework and methodological approach to a specific social field—that of education and training. In both developed and developing countries, policymakers and scholars promote education and training as the solution to precariously high unemployment and rising poverty among youth (e.g., Afeti and Adubra 2012; Zimmermann et al. 2013; OECD

2015; UNESCO 2016). Their argument is that participation in education and training helps youth succeed in the labor market, preventing unemployment and bad working conditions. However, scholars as well as multinational organizations agree that developing and maintaining effective education and training systems is a challenge (e.g., Afeti and Adubra 2012; Eichhorst et al. 2015; OECD 2015) and that they depend on their constituent institutions (e.g., Ryan 2000; Wolter & Ryan 2011).

In this field-specific application, we show how scholars can identify functional equivalents as reference points for finding the social institutions that carry them out. We build on a field-specific theoretical framework using the concept of curriculum as a process (e.g., Billett 2011; Kelly 2009; Renold et al. 2015) to identify the field's key functions. They represent the essential contributions of social institutions to VET programs and are present in some equivalent form across contexts. We use these functional equivalents to identify social institutions in specific programs.

To enhance comparability, we focus on vocational education and training (VET) programs as our unit of analysis. By combining the teaching of general knowledge and occupation-specific skills, VET programs equip young people with the skills, knowledge, and competencies required to enter the labor market in a particular type of occupation (OECD 2017). As VET programs prepare students for both an educational and professional career, the coordination between actors from the education and employment systems—visible in the structure and culture of social institutions in VET—distinguishes these programs from others (Rageth and Renold 2019). By identifying seven key functional equivalents along the VET curriculum process, we lay the foundation for a field-specific approach to measuring and comparing social institutions' robustness. Based on a demonstration of how scholars can apply that

approach in VET, we further hypothesize that programs or systems composed of multiple social institutions are robust when all of their constituent systems are robust.

The proposed theoretical frameworks and methodological approach provide a way forward for creating an empirical measurement instrument assessing social institutions' robustness. Such measurement helps future research glean new insights into how policymakers can strengthen the social institutions in any education and training program, and specifically in VET programs to improve the youth labor market.

This paper proceeds as follows: section 2 summarizes the literature on institutionalism theory, presents the conceptual derivations relevant for our theoretical framework on social institutions and outlines how they relate to one another. Based on the theoretical framework, section 3 develops a generic methodological approach for measuring social institutions' robustness. Section 4 first summarizes the literature on institutions in education and training, and then explains the social field-specific theory by discussing the curriculum process and VET programs' constitutive element, which is education-employment linkage. It further proposes a field-specific theoretical framework that builds on these conceptual derivations and derives functional equivalents as reference points for the identification of different solutions towards these functions. Section 5 applies the theoretical frameworks and methodological approach to demonstrate how scholars can measure and assess social institutions' robustness in VET programs. Section 6 concludes, highlights limitations, and makes an outlook.

2. Theoretical and Conceptual Foundations for Theoretical Framework of Social Institutions

This section starts by reviewing the literature on institutionalism theory and presents a contemporary sociological definition of social institutions. We present the concepts we derive from multiple institutionalism approaches, then break new ground by combining

them into one theoretical framework of social institutions.

2.1 *Literature on Institutionalism Theory*

In sociology, starting with Durkheim's (1895) declaration that studying society concretely means studying institutions. Although that idea was disputed at the time, it gave rise to functionalist theories and analyses of institutions in their functional relationships to other systems and social processes (e.g., Spencer 1929; Parsons 1940; Selznick 1957). Later, a more action-oriented approach focused on social processes in institutions (e.g., Berger and Luckmann 1967; Goffman 1967).

There are already excellent overviews of the major institutionalism theory developments, including DiMaggio and Powell (1983), Coleman (1990), Meyer and Rowan (1977, 1991), and Scott (2008) among others. Some of these reviews find that, despite the vast empirical literature, there is limited theory on institutions and their roles in society (Meyer and Rowan 1977, 1991; DiMaggio and Powell 1983; part II of Koch and Schemmann 2009; Senge 2011; Rogers 2017). In response, a new school of institutionalism aims to consolidate existing institutional theories and build upon them with new concepts and theories of institutional dynamics (e.g., Tolbert and Zucker 1999; Scott 2001 [1995], 2008; Abrutyn and Turner 2011; Leslie and Clunan 2011).

Abrutyn and Turner (2011) conclude that no conflict exists between old and new institutionalism, but they observe a shift to focusing more on "[...] organizations, especially those with power (polity), material resources (economy) credentialing power (education), and the cultural ideologies, norms, and even myths that are generated by organizations within diverse domains" (p.4). Alongside developing theoretical approaches, new institutionalism also includes numerous empirical investigations (see part III of Powell and DiMaggio 1991; Scott and Meyer 1994; Rowan and Miskel 1999).

Social institutions are a central topic in sociology and other social sciences (e.g., Berger and Luckmann 1967; Parsons 1990; Coleman 1990; Fligstein 2001; Rogers 2017; Miller 2019 [2007]). Despite the vast literature, there are many definitions and usages of the term “social institution,” especially after the emergence of new institutionalism theory (Scott 2008; Abrutyn 2014). Abrutyn (2014) states that institutionalists use the concept in an ambiguous and sometimes even colloquial way without properly defining it (e.g., Morrisson and Jutting 2004; Branisa Caballero, Klasen, and Ziegler 2012). Miller (2019 [2007]) addresses this unclear use of the term in both ordinary language and social science, and provides an overview of different theories of social institutions (e.g., Weick 1976; Turner 1997; Searle 1995; Scott 2001 [1995]; Searle 2010; Senge 2011).

Miller (2019 [2007]) proposes a contemporary sociological definition, where institutions are “complex social forms that reproduce themselves such as governments, the family, human languages, universities, hospitals, business corporations, and legal systems” (p.1). He distinguishes social institutions from less complex social forms like “conventions, rules, social norms, roles, and rituals” (p.4), and from complex social entities “such as societies and cultures” (p. 5). Social forms are part of what makes up a social institution, and social institutions are part of what makes up cultures and societies. Miller’s (2019 [2007]) social institutions are often organizations, systems of organizations, and even meta-institutions that organize multiple institutions or organizations. Crucially, he argues that a social institution must have an “institutional end” (p. 3, 38) or function to play in society. These functions can be implicit, and their realization involves interaction among institutional actors. Miller’s (2019 [2007]) definition echoes that of Turner (1997), in which social institutions help overcome fundamental problems through joint action and common patterns of behavior.

By identifying the common properties of social institutions across theories, Miller (2019 [2007]) suggests a systematic and consistent approach. This approach builds the foundation for our theoretical framework of social institutions. In the following subsections, we develop that framework by combining Miller's (2019 [2007]) properties of social institutions with two dimensions from new institutionalism theories relevant to social institutions. These are the temporal dimension that captures institutionalization processes (Tolbert and Zucker 1999) and the spatial dimension that accounts for institutions' scope and boundaries (Leslie and Clunan 2011). We argue that these dimensions help us understand the conditions under which institutional structures evolve and transition towards robust social institutions.

2.2 *Conceptual Derivations*

2.2.1 *Properties of Social Institutions*

Miller (2019 [2007]) uses four general properties to consider social institutions: function, structure, culture, and sanctions. A social institution's *function* is its defining feature, the problem it exists to solve, and its overall purpose or end. Miller (2019 [2007]) draws an important distinction between what constitutes a social institution (i.e., its function) and what keeps it in existence (i.e., its common pattern of behavior or structure). Social institutions' *structure* comprises the roles, rules, and tasks within the institution, and the relationships or hierarchies among them. According to Miller, the structure's relationship to the institution's overall function makes the structure relevant. Institutional *culture* is implicit and "comprises the informal attitudes, values, norms, and the ethos or 'spirit' which pervades an institution" (Miller 2019 [2007], p.8). He argues that culture influences the behavior and practices of individuals, and the ways they carry out tasks. Finally, institutions have *sanctions*—consequences for breaking

rules and norms—that range from formal legal punishment to informal moral disapproval (Miller 2019 [2007]).

2.2.2 *Temporal Dimension of Social Institutions*

Tolbert and Zucker (1999) propose a *temporal dimension* in social institution analysis that accounts for the development of an institution over time. This temporal dimension describes the process of institutionalization and development of institutional structures. During this process, certain rules become characteristic of “social patterns” (Jepperson 1991, p. 145) of behavior in certain fields. Institutionalization processes take time and, at the outset, are particularly threatened by external groups with competing innovations or goals (Tolbert and Zucker 1999).

Tolbert and Zucker (1999) differentiate three phases of institutionalization: pre-institutionalization (habitualization), semi-institutionalization (objectification), and full institutionalization (sedimentation). During pre-institutionalization, a few actors begin to carry out institution-related behaviors driven by some innovation in response to a problem. By leading to structural arrangements, these processes become habitualized. In semi-institutionalization, they argue that organizations begin to formalize these structural arrangements in their internal policies and procedures. In this phase, behaviors become patterns with attached shared meaning, and a social consensus emerges on the value of an institutional structure. Tolbert and Zucker (1999) state that these objectified structures diffuse widely among heterogeneous adopters.

Finally, in the full institutionalization phase, new behavior patterns are transmitted to the next generation, who may take those patterns for granted. According to Tolbert and Zucker (1999), interest groups’ resistance or support plays an important role in getting to this phase, as do the new institution’s outcomes. They argue that with support and good outcomes, nearly all possible constituents adopt the new institution

and begin to build historical continuity. With opposition and bad outcomes, the institution may de-institutionalize, reversing back down the progression. Fligstein (2001) states that this struggle between supporters and opposition of new institutions describes most modern social dynamics.

2.2.3 *Spatial Dimension of Social Institutions*

Leslie and Clunan (2011) introduce a *spatial dimension* that identifies whether a given social institution has a narrow or broad scope of influence. They argue that boundaries define who is subject to an institution's rules, how far the institution's rules reach, and when conflict and cooperation are internal versus external issues. For Leslie and Clunan (2011), institutional boundaries can be geographic or any characteristic used to divide jurisdictions or categories, including families and occupations. Therefore, boundaries vary significantly in their nature and permeability.

We differentiate between social institutions with narrow and broad representation, affecting either small local or regional jurisdictions or large national and super-national jurisdictions. The spatial and temporal dimensions are related: according to Tolbert and Zucker (1999), the “variance in implementation” (p. 179) of social institutions decreases along the institutionalization process.

2.3 *Theoretical Framework of Social Institutions*

Figure 1 combines the properties and dimensions of social institutions into a single theoretical framework that ties the main concepts together. Each row depicts one of the four properties of social institutions (Miller 2003, 2019 [2007]). The columns represent the temporal dimension, using the three phases of institutionalization (Tolbert and Zucker 1999). Each column is additionally divided into two parts for the spatial dimension, showing whether the institution is narrow or broad in scope (Leslie and

Clunan 2011).

Figure 1. Theoretical framework of social institutions

		Temporal Dimension (Tolbert&Zucker)					
		Pre-institutionalization		Semi-institutionalization		Full-institutionalization	
Institutional Properties (Miller)	Function						
	Structure						
	Culture						
	Sanction						
		Narrow	Broad	Narrow	Broad	Narrow	Broad
		Spatial Dimension (Leslie&Clunan)					

Source: Own depiction

The theoretical framework combines social institutions' properties, institutionalization phase, and representativeness to build a more comprehensive picture of the institution. The value of this theoretical framework lies in its bringing together of multiple institutionalism approaches into a simultaneous assessment of an institution's properties, temporal dimension, and spatial dimension. Assigning each dimension of a given social institution to a specific box in the grid identifies its institutionalization and scope. Filling those boxes to represent the robustness of the institution's four main properties creates an overall understanding of the institution's status. Based on that understanding, the following section derives hypotheses on the conditions that make the overall social institution more or less robust.

3. Methodological Approach for Measuring Social Institutions' Robustness

We now develop a generic methodological approach for assessing a social institution's robustness using the theoretical framework and derive hypotheses for testing in future research. This approach is generic and applicable in any social field.

Beginning with social institutions' properties, institutions with more clearly defined properties—functions, structures, cultures, and sanctions—should be more robust. However, the specific definitions of a robust function, structure, culture, and sanction may vary by formality (Scott 2008) and by social field. Scott (2008) differentiates between regulative, normative, and cultural-cognitive institutions, in order of descending formality and explicitness. Regulative institutions' rules are codified in law, with coercion the main control mechanism. Normative rules are based on norms, and control comes from morality. Rules in the cultural-cognitive group are taken for granted, and control comes from imitation and tradition. According to Scott (2008), the three groups are not mutually exclusive. Just as institutions' properties can vary by formality, they can also vary by specific social field— for example, the description of the properties of a social institution related to education differs from that of one in the economy due to their specific function in society. However, we can provide some general description based on theory.

Overall, robust social institutions have detailed definitions of the roles, responsibilities, and hierarchies, general shared social meanings attached to the behaviors generated by these structures, and a higher likelihood that the actors impose the sanctions on those participants who reject the agreed-upon values, norms, and roles. We argue that a robust social institution must have robustness in all of its properties, not merely one or most. This hypothesis needs to be tested against the other possibilities, for example that a single specific property is sufficient or that three of the four is sufficient. Our hypothesis is:

H1: A social institution is robust when all of its properties—function, structure, culture, and sanction—are robust.

Hypothesis 1 requires further definition of robustness in each property. First, if the key actors agree on a fundamental problem that needs to be solved through their joint action—thus they are aware of the function of the social institution—the social institution is more explicit and more formal (Scott 2008). The *function* is a representative in social institutions' properties (structure, culture, sanctions; Miller 2019 [2007]) and temporal and spatial dimensions (Tolbert and Zucker 1999; Leslie and Clunan 2011). As a result, the social institution fulfills its function more effectively. Therefore, we hypothesize that

H1a: A social institution is more robust when it fulfills its function more effectively.

The robustness of the social institution with regard to its *structure* depends on how specific actors' roles, responsibilities and hierarchies are. These structures enhance coordinated action, resulting in relatively stable patterns of common behavior (Miller 2019 [2007]). Structures are related to both formality and the temporal dimension. Formal social institutions' structures are defined by regulation, and informal structures are taken for granted; in the middle are normative institutions, defined by norms (Scott 2008). Any of these can be clear and strong, but more formal institutions are likely to be more transparent to the researcher. According to Tolbert and Zucker (1999), in the pre-institutionalization phase, newly generated structures exist in response to a specific problem, while in the semi-institutionalization phase they have diffused more. In full-institutionalization, structures are spread across the main actors and stable over time. We hypothesize that:

H1b: A social institution is more robust when its structure is more clearly defined and more stable.

Culture is the extent to which shared values, attitudes, and incentive mechanisms influence the common behavioral patterns of actors in a social institution (Miller 2019 [2007]). We hypothesize that:

H1c: A social institution is more robust when its culture more strongly influences a common pattern of behavior among its actors.

The final property, *sanctions*, ensures individuals' compliance with the agreed-upon rules of conduct, standards, and responsibilities (Miller 2019 [2007]). Sanctions, like structure, are related to formality. Sanctions range from coercion in regulative institutions to morality in normative institutions and tradition in cultural-cognitive institutions (Scott 2008). All of those sanctions can be strong or weak, so none is necessarily more robust than the others are. As the institution matures over time, its compliance with agreed-upon rules of conduct, standards, and responsibilities in fulfilling the function are likely to get stronger. Sanctions are not necessarily present in fragile and small institutions in the pre-institutionalization phase, when actors still need to develop and consolidate a common pattern of behavior (Tolbert & Zucker 1999). Regardless of formality or institutionalization progress, individuals in more robust social institutions are likely to find it important that the agreed-upon values, norms, and roles are respected. We hypothesize that:

H1d: A social institution is more robust when its sanctions are applied more quickly in response to violations of agreed rules.

In addition to social institutions' properties, the theoretical framework includes temporal and spatial dimensions. For the *temporal dimension*, social institutions' common patterns of behavior vary in the degree to which they are embedded in their social systems and in their level of institutionalization. According to Tolbert and Zucker

(1999), social institutions gain stability and power to determine behavior as they progress through the institutionalization process. We therefore hypothesize that:

H2: A social institution is more robust as it advances through the institutionalization process.

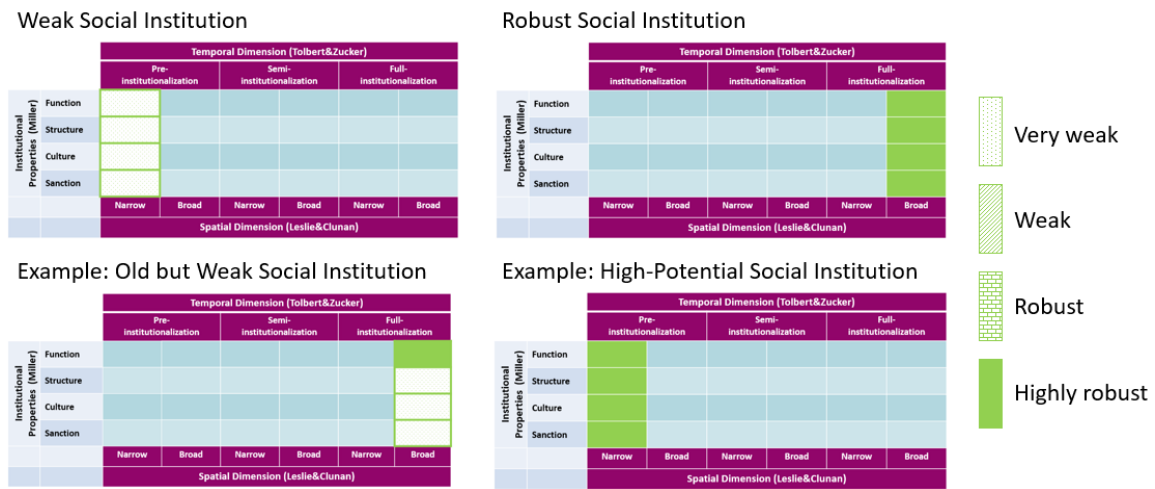
For the *spatial dimension*, Leslie and Clunan (2011) argue that by protecting the institution and providing institutional continuity, boundaries contribute to social institutions' robustness. The boundaries defining the representativeness help social institutions ensure their survival by providing a source of legitimacy and measure of security. By designating the institution "as the carriers of autonomy" (Leslie and Clunan 2011, p. 124), boundaries help guarantee institutional continuity. Thus, we hypothesize that

H3: A social institution is more robust when it is broader in scope.

Figure 2 demonstrates two ideal types of social institutions. Based on the theoretical framework, we can hypothesize that a social institution is more robust when it is more like the top right example: fully institutionalized, broad such that it represents most or all of its potential constituents, and with robust properties. In contrast, a weak social institution is in its pre-institutionalization phase, narrow in scope, and has weakly defined and observable properties. Therefore, we also hypothesize that:

H4: A robust social institution is robust in every dimension of the framework, it has robust properties, it is fully institutionalized, and it is broad in scope. A weak element in any dimension makes for a weaker institution.

Figure 2. Examples of observable features of social institutions using the framework



Source: Own depiction

Also shown in Figure 2 are examples of two other types—though many more are clearly possible. First, shown in the bottom left, is the old but weak institution. This social institution is fully established and broad with a clear function, but is weak in its structure, culture, and sanctions. An institution like this may be failing, despite having a strong function. An example of this type is a legal act that had been in place for decades but never acted on. In contrast, the bottom right example is a new institution with high potential. An example of this may be the youth climate change movement, which is new at the time of this writing but has high potential for developing towards a robust, world-wide social institution. This institution may only be in the pre-institutionalization phase and may be narrow in scope, but its strong properties indicate growth possibilities.

However, these hypotheses and examples are rather abstract. In addition, the relative weights, observable characteristics, and relationships among properties and dimensions in the framework will vary by social field. Therefore, in the next section, we move from generic sociological theory and methodology to field-specific context, namely to the social field of education and training. Social institutions govern the education and training actors, their roles, and their relationships. Because institutions are so central to education and training systems, we need to understand the specific

characteristics of that social field, its theoretical concepts and the conditions that make its social institutions robust. Although we apply the generic theoretical framework and methodological approach to assessing the social institutions in education and training, we argue that scholars can apply the same framework to any social field by elaborating on the field-specific theory and concepts.

4. Theoretical and Conceptual Foundations for Field-Specific Theoretical Framework

This section defines education and training as a “social field” (Bourdieu 1977; Bourdieu and Wacquant 2006 [1996]). According to Scott (2008), defining such fields helps delineate the settings within which institutions operate. Hence, we apply the developed theoretical framework of social institutions and methodological approach for measuring their robustness to the social field of education and training. We thus first provide a brief overview of the literature related to social institutions in education and training. We then explain the theory that is relevant for understanding the social field’s specific characteristics and finding the appropriate level and unit of analysis. The field-specific theory further guides us in the identification of the unit’s functions that are equivalent across contexts. These functions then serve as reference points for finding the social institutions that carry them out.

4.1 Literature on Institutions in Education and Training Systems

There is a longstanding awareness of institutions’ importance for analyzing education and training systems (e.g., Streeck et al. 1987; Allmendinger 1989; Streeck 1989; Kerckhoff 1995; Ryan 2000, 2001). In policy-oriented research, institutions are the accepted starting point for cross-country analyzes and comparisons of education and

training programs and systems. For example, Cedefop's *Apprenticeship Reviews*¹ and policy reports (e.g., Cedefop 2018) take an institutional approach. The OECD also uses an institutional framework in its *Learning for Jobs* series (OECD 2010) and in *Making Inclusive Growth Happen* (OECD 2015). The World Bank (2013) has developed a “diagnostic tool for assessing countries’ institutions, policies, and praxis for workforce development” (p.5) to help support systems-level analysis. UNESCO (2016) stresses institutions as a source of opportunities and challenges in its *Strategy for Technical and Vocational Education and Training (TVET)*.

In academic research, institutions are a key part of education and training systems analysis from the economic, political economic and sociological points of view. The economic literature highlights how the institutions of education and training systems affect efficiency and resolve market failures (e.g., O'Higgins 1997; Wolter and Ryan 2011; Eichhorst et al. 2015). Institutions—including public regulation, employers and their organizations, or educators and their own organizations—can amplify or reduce market failures such as information asymmetries and unbalanced incentives. Becker (1964) started the economic conversation on education and training systems with his human capital approach, which differentiates general and firm-specific skills. By building on this approach, Acemoglu and Pischke (1998, 1999) analyze whether firms should participate in education and training and find that they should avoid supplying the general knowledge and skills that enable workers to leave for competing firms. Estevez-Abe, Iversen, and Soskice (2003 [2001]) explain the prevalence of firm participation in some education and training systems through the institution of social protection policies. Wolter, Muehlemann, and Schweri (2006) go even further, showing

¹ <https://www.cedefop.europa.eu/en/events-and-projects/projects/apprenticeships-work-based-learning#1>

that some institutional arrangements in education and training can encourage firms to train both general and specific human capital when they earn returns on training.

The initial *economic conversation* focused on understanding why firms in so many countries' education and training systems provide training when human capital theory says they should not. As that conversation expands, it has begun to consider the specific institutions and contexts of developing countries. Freeman (2010) summarizes the impact of labor market institutions in developing countries. He underlines the importance of understanding how the informal-sector labor market works and how its institutions can deliver social benefits. Escandon-Barbosa, Urbano-Pulido, and Hurtado-Ayala (2019) emphasize that different institutions can serve the same functions, providing "other channels by means of which a country's institutional weaknesses may be counteracted" (p. 14). According to multiple scholars, the lack of systematic couplings between education institutions and their labor-market counterparts is a major barrier to efficient education and training systems in low- and middle-income countries (Palmer 2007; Ahadzie 2009; Afeti and Adubra 2012). Overall, the economic literature highlights the problems that institutions try to solve in education and training systems, and identifies cases where they are and are not able to resolve those problems.

In the *political economy literature*, the interest in skills—and thus in education and training systems—results from the debate over the distinctive political and institutional foundations of national political-economic systems (Thelen 2004; Culpepper and Thelen 2008). Thus political scientists mostly analyze education and training as it relates to national political-economic systems, or via the political mechanisms it employs to solve coordination problems. For example, education and training systems can play a role in defining and sustaining different varieties of

capitalism (e.g., Streeck 1991; Hall and Soskice 2001), and interacting with other political-economic systems and their institutions (Culpepper and Thelen 2008).

Emmenegger, Graf, and Trampusch (2019) identify a gap in the political economy of skills literature, which lacks “systematic comparative analysis of cooperation at the decentralized level as well as the actual social practices of cooperation” (p. 21). They develop a conceptual framework that places institutions and institutional interaction at the center of sustaining the cooperation upon which many education and training systems rely. Busemeyer and Trampusch (2012) synthesize the research on collective skill formation systems’ institutional arrangements and how those affect institutional development.

In *sociology*, numerous scholars have investigated the role of institutional arrangements in education and training systems and how they affect student outcomes like educational attainment, school-to-work transitions, and mobility (e.g., Maurice and Sellier 1979; Maurice, Sellier, and Silvestre 1986; Allmendinger 1989; Kerckhoff 1995; Mueller and Shavit 1998). In the 1980s and 1990s, the comparative stratification literature proposed a set of institutional dimensions along which national education systems differ (e.g., Allmendinger 1989; Kerckhoff 1995; Mueller and Shavit 1998). These dimensions are the degree of standardization in educational curricula, the level of stratification (the extent and form of tracking), and the vocational specificity of education and training.

Some sociological research analyzes education and training systems from the perspective of Luhmann’s (1995, 2009 [1987], 2013) theory of social systems. Building on Glassman (1973)—who originated the concept of coupling issues in education and training systems—Weick (1976) describes educational organizations as loosely coupled social systems. According to Luhmann (1995), social systems serve a specific function,

which can include skills development through education and training. Education and training serve many purposes, and the system must manage coordination and control among institutions so those goals are met (Eichmann 1989; Rageth and Renold 2019). Fligstein (2001) emphasizes the importance of socially skilled actors for constructing and reproducing social orders.

Rageth and Renold (2019) provide a theoretical framework for comparing VET programs across countries and cultures based on the dimensions that explain youth labor market outcomes. By focusing on the power-sharing between actors from the education and employment systems, Rageth and Renold (2019) identify three ideal types of education and training programs: one type of high-linkage programs where education- and employment-system actors share decision-making power, and two low-linkage types where actors from one system monopolize decision-making power.

Taken together, research on education and training systems provides a clear foundation of institutions' importance, role, and behavior in certain contexts. Regardless of field, this literature shows how institutions and their interactions shape education and training systems, and how or why institutions can both resolve and create challenges. However, existing research generally focuses on the system level, which leaves out the behaviors of the actors within the systems or institutions. In addition, the literature generally considers institutions' and systems' statuses at one moment, not their development over time, which is another hindering factor for understanding the conditions under which education and training systems can evolve sustainably.

4.2 Vocational Education and Training Programs as Units of Analysis

An education and training system includes all general education and VET programs in a jurisdiction (Rageth and Renold 2019). While general education typically prepares young people for further academic education, VET prepares them primarily for labor

market entry. According to the OECD (2017), VET is “designed for learners to acquire the knowledge, skills and competencies specific to a particular occupation, trade or class of occupations or trades” (p. 72). VET is therefore a particular case of education and training. It is specific in its goals—including, but not limited to, successful youth labor market outcomes—but complex in its participants, programs, and institutions considering the involvement of both education and employment systems (Billett 2011; Bolli et al., 2018). VET is an education program, not a labor-market integration program—it prepares young people for both educational and professional careers. Consequently, the OECD (2017) states that VET entails courses and subjects that are common to general education, such as mathematics or languages. In addition, although VET can happen mostly in a school environment, it may also take the form of combined school- and work-based programs, called dual VET (OECD 2017).

For comparison within VET, Renold et al. (2016) distinguish between pathways, programs, and curricula: At the highest level of complexity, VET pathways cover all VET programs in a country—referring to different trades and educational levels—or all programs that prepare students specifically for labor market entry. VET programs occupy a specific level and type of program in the VET pathway (Renold et al. 2016; OECD 2017). Often there is only one program per level, but there may also be multiple types or models of VET delivery at the same level. Within VET programs are curricula, or the specific occupations available through that VET program (Renold et al. 2016).

According to Grollmann (2008), one of the challenges of comparative VET research lies in finding the appropriate level of analysis—the balance between too much complexity and too much simplicity. Lauterbach and Mitter (1998) argue that the definition of a level of analysis needs to take into account its comparability. Focusing on the VET program level gives us comparable units—programs with similar goals and

levels—while allowing for diverse organizational characteristics that determine the social institutions involved in different VET programs.

4.2.1 Education-Employment Linkage

Rageth and Renold (2019) argue that the purpose of VET programs is to prepare young people for not only an educational career but also a professional one in the labor market. Building on Luhmann's (1995, 2009 [1987], 2013) theory of social systems and the subsequent work of Eichmann (1989), Rageth and Renold (2019) state that this connectivity to both an educational and professional career requires linkage between actors from both the education and employment systems throughout the education and training process.²

The theory of social systems posits that the education and employment systems are two functionally differentiated social systems, each serving its own function and making its own contribution to society (Luhmann 1995, 2013). Each system has an internal communication code that follows from its function. In the education system, the function is preparing young people for society, building human capital, and assigning social positions through selection. Consequently, the code is passing or failing. The employment system's code is payment or non-payment (Luhmann 2009 [1987]), which follows from the system's function of converting human capital into productive value. The coordination of functionally differentiated social systems is called structural coupling (Luhmann 1995, 2013). That coupling happens through systems' programming—the part of the system that interacts with its environment as opposed to

² Other scholars applying the theory of social systems to the field of VET discuss whether VET has evolved or is developing towards its own social system, e.g., Lange (1999) and Kell (2007) in the case of Germany.

the rest of its operations, which are operationally closed. In education systems, this programming is called the curriculum and its purpose is education (Eichmann 1989; Luhmann 1995).

Eichmann (1989) argues that unfavorable labor market outcomes, such as unemployment or skills mismatch, are the consequences of problems with coordination and control in the communication between the actors from the two systems. Thus, without a structural coupling between the education and employment systems—linkage between actors from the two systems—VET programs may not be able to ensure both educational and professional career opportunities for graduates (Rageth and Renold 2019). Rageth and Renold (2019) hypothesize that VET programs without linkage between actors from the education and employment systems generate unfavorable labor market outcomes. However, they leave it open as to how one can tackle such problems with coordination and control in the communication between the two systems actor groups. We argue that this communication acts as stimulus for triggering common pattern of behavior and thus evolvement of social institutions.

Thus according to Rageth and Renold (2019), the constitutive element of VET programs is the *linkage between the actors from the education and employment systems*. We argue that linkage between actors from the two systems throughout the VET curriculum process is the main characteristic that distinguishes social institutions in VET programs from those in other education programs. This cooperation is reflected in the structure of a social institution—the actors' roles, their relationships, and hierarchies—and in its culture—the habits and values of the actors from the two systems. We argue that this constitutive element of VET programs makes it necessary to identify “features that have previously gone unnoticed” (Weick 1976, p. 2). In the analysis of education and

training, such a feature is the coordinated common pattern of behavior between actors from the education and employment systems within social institutions in VET.

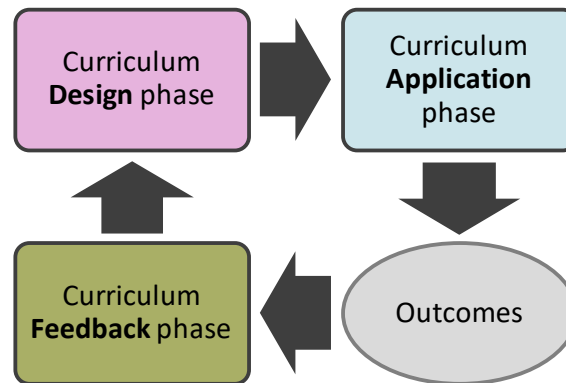
4.2.2 *VET Curriculum Process*

As the curriculum is the programming of the education system, we put the curriculum process in the forefront of our analysis. By focusing on the CVC as a generic concept for curriculum processes, we can balance complexity and simplicity (Braun 2006; Grollmann 2008). By combining the idea of curriculum as a process (e.g., Marsh and Willis 1995 [1984]; Billett 2006, 2011; Kelly 2009) with that of a value chain, Renold et al. (2015) establish the concept of the curriculum value chain (CVC). The wider perspective of curriculum as a process—rather than solely a content to be transmitted—is related to the structure of power and control processes (Marsh and Willis 1995 [1984]). The value chain describes the full range of activities that are required to provide a valuable product or service for the market (Kaplinsky and Morris 2000). In VET programs, the relevant service is the education and training provided to the students. Emphasizing activities and effects, this perspective helps us examine the social institutions in VET in terms of their institutional properties.

Figure 3 shows that the CVC is a cyclical process with three phases where social institutions can have an influence on the VET program (Renold et al. 2015; Renold et al. 2016). First, in the *curriculum design phase*, actors define and decide upon the “intended” (Billett 2006, 2011) or “planned” (Marsh and Willis 1995 [1984]; Kelly 2009) curriculum, thus specifying curriculum content, qualification standards, and examination forms. Second, the *curriculum application phase* covers program delivery—“who is taught, by whom, where, with what equipment, and financed by whom” (Renold et al. 2016: 8). In this curriculum process phase, Billett (2006) builds on Marsh and Willis (1995 [1984]) to differentiate between the enacted curriculum and

the experienced curriculum(i.e., what teachers do and what learners perceive). Kelly (2009) makes a similar distinction between the delivered and received curricula. In VET, a broad range of institutions are involved in this curriculum enactment or delivery, possibly more than in other fields of education (Billett 2011).

Figure 3. The curriculum value chain (CVC)



Source: Own depiction based on Renold et al. (2015, p. 13)

The outcomes following the curriculum application phase allow for analysis of whether the curriculum had its intended effects through, for example, evaluations or employer surveys (Finch and Crunkilton 1993; Renold et al. 2015; Renold et al. 2016). In the *curriculum feedback phase*, information is gathered to help determine the content and timing of curriculum updates, which happen re-start the cycle (Renold et al. 2016). This curriculum process phase is especially important in VET because of how quickly innovation and technological change affect the labor market’s skills requirements (Renold et al. 2016; Rageth 2018; Renold, Bolli, et al. 2019).

Building on the specific characteristics of the social field and the CVC as conceptual derivation for analyzing the curriculum process of VET programs, the following subsection explains our field-specific theoretical framework and shows how functional equivalents help scholars compare and identify social institutions in VET programs across contexts.

4.3 Field-specific Theoretical Framework

4.3.1 Functional Equivalents Enabling Comparison

As terms and concepts are socially constructed, international comparisons risk applying terms and concepts that are not comparable (Brandl-Bredenbeck 1999; Brockmann, Clarke, and Winch 2008; Brockmann et al. 2011; Höllinger and Eder 2016; Renold *Forthcoming*). Due to the high diversity and broad range of institutions involved in VET (Billett 2011), this challenge is especially relevant for comparative VET studies. Thus one reason for biases in cross-cultural comparisons are cultural projections (“nostrification”; Matthes 1992: 84; Grollmann 2008: 256ff.), such as studies using dual VET programs as benchmarks for research in diverse countries and cultures.

According to Grollmann (2008), scholars should therefore try to avoid applying their own culturally determined terms and concepts in research in other contexts. Similarly, Renold (*Forthcoming*) argues that scholars should decontextualize and deconstruct such social constructs, while Brockmann, Clarke, and Winch (2008) and Brockmann et al. (2011) recommend using transnational categories. Such categories ensure that culturally distinct meanings of outwardly similar terms and concepts—such as skills or competencies—do not lead scholars to compare apples with oranges (Brockmann, Clarke, and Winch 2008; Brockmann et al. 2011; Renold *Forthcoming*).

Bourdieu (1977) advocates conceptualizing social reality as a relational space, and thinking relationally when analyzing social fields (Bourdieu and Wacquant 2006 [1996]). Comparing functional equivalents makes comparisons relational rather than similarity-based (Schriewer 1987; Luhmann 2010). For Luhmann (2009 [1970], 2010), the method of analyzing functional equivalences is the best way to identify (causal) relationships between comparable units. While functional equivalence accounts for behaviors that are related to functionally similar problems, conceptual equivalence

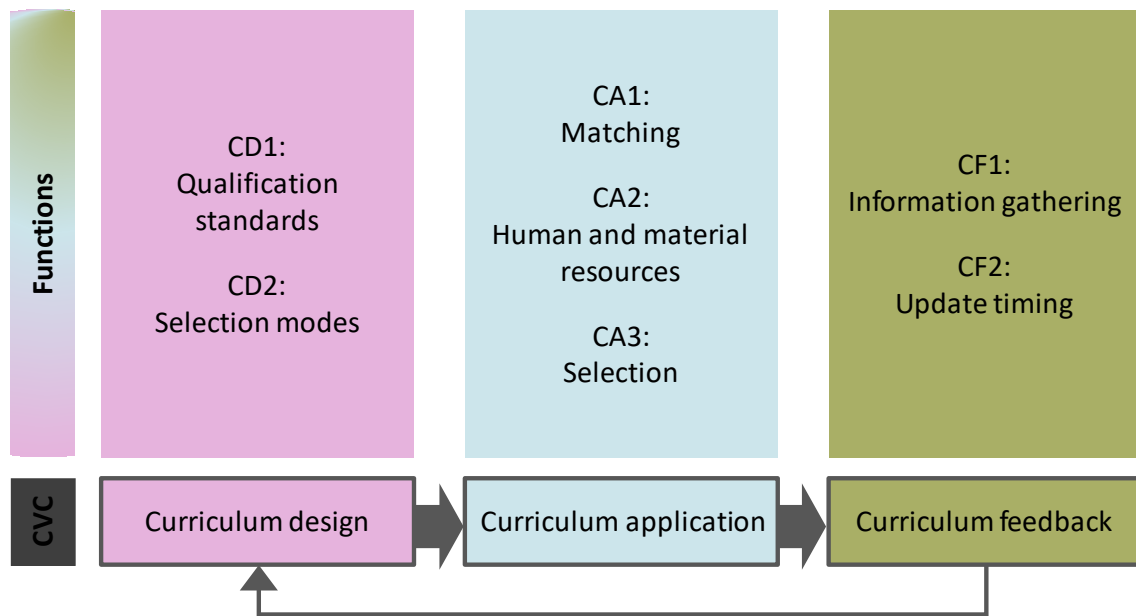
considers that terms and concepts may have different meanings across cultures and countries (Brandl-Bredenbeck 1999; Braun 2006).

4.3.2 *Identifying Social Institutions along VET Curriculum Process*

Focusing on the functions along the CVC allows us to identify those social institutions that are comparable in their relation to the intended theoretical dimension and to investigate the extent to which they are functionally equivalent (Schriewer 1987; Braun 2006; Renold *Forthcoming*). Thus the functions are reference points for the identification of different solutions towards these functions, such as institutional strategies (Luhmann 2010). Taking a functionalist perspective, we thus clarify the functions along the CVC and state that VET programs differ in the social institutions that evolved to fulfil these functions. Importantly, we argue that multiple solutions based on functional equivalents can exist, thus dissimilar social institutions may be functionally equivalent in VET programs in different contexts (Dogan and Pelassy 1984). Therefore, we suggest using these functions to identify the social institutions in VET serving each function.

Due to lack of empirical evidence, we define these seven functions based on substantive experience and the sub-processes of the CVC defined in previous research (Rageth and Renold 2019; Renold, Bolli, et al. 2019). We build on Bolli et al. (2018) and Rageth and Renold (2019) who identify the detailed sub-processes in which actors from the education and employment systems can interact in each of the three curriculum process phases. However, we abstract from these sub-processes by focusing on the functional equivalents. Building on Miller (2019 [2007]), we specify these functions as social institutions' contributions to the CVC and thus to the provision of VET. Figure 4 gives an overview of these functions in each of the three curriculum process phases.

Figure 4. Overview of VET functions along the CVC



Source: Own depiction based on Rageth and Renold (2019); CD = Curriculum Design; CA= Curriculum Application; CF = Curriculum Feedback.

The first contribution of the curriculum design phase is the definition of *qualification standards* (CD1). These qualification standards define the minimal qualifications that students need to either proceed with their educational careers (educational standards) and/or successfully enter the labor market (occupational standards) (Brockmann, Clarke, and Winch 2008). They are based on the involved actors' decisions about the intended aims, purposes, form, and outcomes of the VET program (Billett 2011). The specific social institution for this function depends on the different rules and procedures on how to develop such a qualification standard. The second design function is the definition of *selection modes* (CD2) that are consistent with the qualification standards. These selections modes define how student selection works at the end of the VET program, clarifying the processes leading to grades, passing, or failing.

The curriculum application phase is the delivery of the intended qualification standards to students. Its first function is the *matching* (CA1) of students to learning

places. Matching entails informing and guiding students to the right occupations or occupational fields, helping them find the right learning places (Billett 2011), and helping education and training providers find the right students.³ The second application function is the provision of adequate and appropriate *human and material resources* (CA2). This function includes the qualification of the personnel organizing and enacting qualification standard delivery to ensure that teachers, trainers, and examiners can act effectively (Billett 2011). In addition, material resources comprise all infrastructure, equipment, and supplies that students need to achieve the qualification standards. Importantly, these factors shape what students experience and engage with (Billett 2006; Kelly 2009). The third application function is *selection* (CA3) of students at the end of the VET program—often through exams—based on the selection modes defined in the curriculum design phase. This function also depends on the governance of the education system. For example, if students’ teachers are responsible for carrying out the examination procedure, their priorities and incentives can lead to great variation in selection between programs. In contrast, nationally regulated examinations designed by a national examination board may ensure more uniform application of the examination procedure.

Outcomes are previous curriculum phases’ effects on students, including whether and under what working conditions graduates find a job in the labor market. Thus, *information gathering* (CF1) on the outcomes of the VET program is the first function of the curriculum feedback phase. This function helps identify deficiencies in

³ Examples are online platforms, such as <https://www.azubi.de/> for Germany, <https://www.careerwisecolorado.org/students/apply/> for Colorado (USA), <https://www.berufsberatung.ch/dyn/show/2930> or <https://www.yousty.ch/de-CH> for Switzerland.

the qualification standards and ensure that these standards are in line with changing labor market demands (Finch and Crunkilton 1993; Renold et al. 2016). Such information gathering includes, for example, surveys among employers, supervisors, and former students on their labor market outcomes (Finch and Crunkilton 1993; Renold et al., 2019, provide an example of such a curriculum evaluation). Another example are evaluations on the learning outcomes that were actually achieved by the students and on how far these outcomes are in line with the program's intended effects (Billett 2011). Gathered information is used to evaluate and improve the qualification standards and to define the timing when an update is necessary. Thus the second feedback function is *update timing* (CF2) for the VET program's curriculum.

5. Applying Theoretical Frameworks and Methodological Approach

For future analyses and comparisons of social institutions in VET programs, the following section shows how scholars can apply the generic methodological approach for assessing the robustness of social institutions (see section 3). By using examples of social institutions in VET programs, we hope to improve comprehensiveness.

5.1 Robustness of Institutional Properties in VET

First, drawing on the theoretical framework, the robustness of each social institution along the CVC must be observable by a common pattern of actors' behavior and the transition towards a social institution. First, each social institution fulfils at least one *function* and may do that in different ways and qualities across VET programs and/or countries. If the key actors are substantially involved in a VET program, show a robust common pattern of behavior, and are aware of the functions along the CVC, these functions have a high degree of formality (Scott 2008). Robust social institutions are

those that fulfill their functions most effectively.

Second, the more clear actors' roles, responsibilities, and hierarchies in VET are, the more robust the *structure* of the social institution is. As the linkage between actors from the education and employment systems plays an important role in a VET program (Bolli et al. 2018; Rageth and Renold 2019; Rageth 2018), the structure must reflect this through adequate involvement of actors from both the education and employment systems (Rageth and Renold 2019). Building on social system theory, we argue that communication between actors from these two systems acts as stimulus for triggering common patterns of behavior and thus improving social institutions' robustness in VET programs. For example, such a linkage includes the cooperation between companies or industry associations from the employment system, and teachers, principals or other representatives from the education system. The clearer the roles and responsibilities of these actors are, the more robust is the structure of the social institution. Other institutional characteristics, for example socially skilled actors (Fligstein 2001), can enhance this structure. The involvement of actors from the two systems increases the program's effectiveness in terms of outcomes like access to jobs, good working conditions, and higher incomes (see, e.g., Bolli, Oswald-Egg, and Rageth [2017] or Rageth [2018]).

Third, the extent to which common values, attitudes, and incentive mechanisms influence the common behavioral patterns of the involved actors reflects the *culture* of a social institution (Miller 2019 [2007]). To assess the robustness of this culture, scholars can examine whether the actors involved in the social institutions in VET have incorporated certain values such as willingness to cooperate across the education and employment systems (Rageth and Renold 2019) and if they are able to transmit that cooperative behavior to a higher level of social order (Coleman 1990). Another

possibility for observing this cultural formality is the satisfaction of VET experts with the behavior of the involved actors, i.e. whether they see themselves as members of a robust movement.

Fourth, *sanctions* (Miller 2019 [2007]) ensure compliance with the agreed-upon rules of conduct, standards, and responsibilities. We further state that, if the social institution applies such sanctions through regulations, it has a higher degree of formality (Scott 2008). For example, if training companies involved in a specific VET program have to carry out examinations (CA2 selection) but refuse to do so, they can lose training privileges with highly regulated institutions. In that case, the actors find it important that values, norms, and roles are respected to ensure equal treatment of students. Moreover, the higher the likelihood that the actors impose the sanctions on those participants who reject the agreed-upon values, norms, and roles, the more robust a social institution is. Conversely, if a company refuses to be involved in developing a qualification standard (CD1) for a pilot project program (pre-institutionalization phase), it will be rather unlikely that this company will be punished and excluded from training because another company may be willing to contribute in this initial phase.

5.2 Robustness of Institutional Dimensions in VET

Tolbert and Zucker (1999) argue that social institutions can be located in different development stages of the institutionalization process, which is in their *temporal dimension*. As they progress, their structures embed more deeply in society, gain historical continuity, and increase their power to determine behavior. Thus, to assess the robustness of each social institution in VET, we should identify its current stage of institutionalization. For example, in many countries, the social institutions responsible for the training and continuing education of qualified personnel (*Human resources, CA2*) have long been institutionalized (Nielsen 2010). Thus these institutions are in the

full institutionalization stage according to Tolbert and Zucker (1999). In contrast, including actors from the employment system in the definition of a new program's *qualification standard (CDI)* may be new territory. This cooperation is likely to begin with pilot trials. Consequently, the social institution for defining the *qualification standard (CDI)* will not yet be accepted by all actors and will be in the pre-institutionalization phase (Tolbert and Zucker 1999). Such pilot trials may fail—actors may be unable to build coalitions “to enforce a local social order” (Fligstein 2001, p. 115).

Social institutions in VET can also differ in their *spatial dimension*, that is their scope or degree of representativeness (Leslie and Clunan 2011). Pilot trials are again an example for social institutions in VET with narrow scopes, because they operate at a small scale (e.g., in only one school district). Even as pilot projects advance to the semi- or even full-institutionalization phases—becoming VET programs with higher robustness—they may remain limited in jurisdiction. In contrast, in many developed countries, robust social institutions have been responsible for *information gathering (CF1)* at the national level for many years. Such a social institution has a high representativeness, covering the whole country, and is in the stage of full institutionalization.

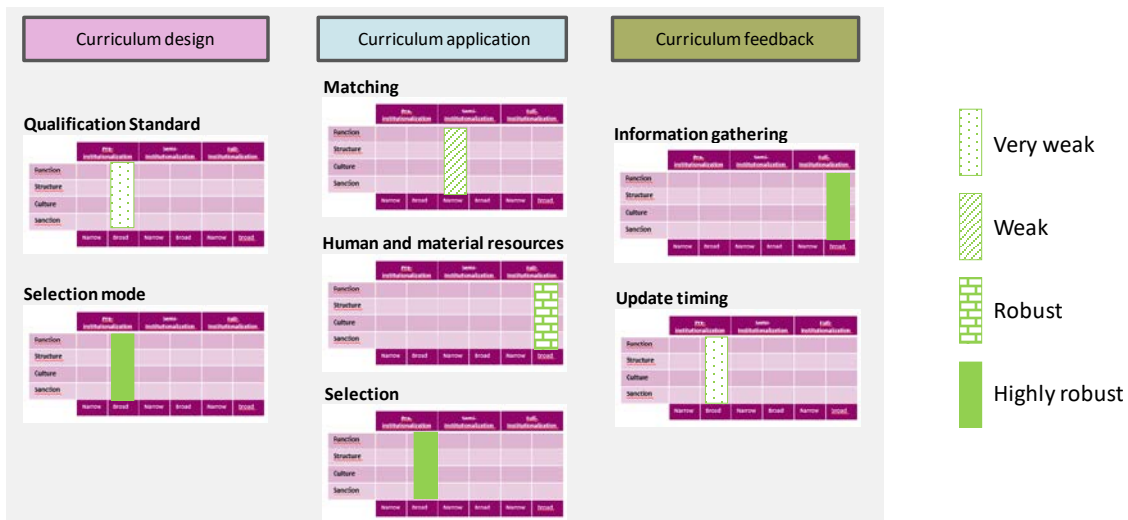
Another, more complex example is a national government that enacts a VET law as the first step of an innovation (pre-institutionalization phase). The law may include regulations concerning several functions along the CVC. This law is a regulative institution according to Scott (2008), both highly formal and highly representative. However, starting the institutionalization process with a law before learning whether VET actors are willing to accept can lead to program failures (Fligstein 2001). In Nepal, for example, the government enacted a “Industrial Trainee Training Act,” which was

never implemented by VET actors (Caves and Renold 2017). In Serbia, as another example, the government has enacted a dual education law without much evidence of actors' commitment from the education or employment systems (Renold, Caves, et al. 2019). The law describes the roles and responsibilities of companies and schools involved in dual VET (Renold and Oswald-Egg 2017). Initial implementation research shows that, after the first year of implementation, more effort is needed to motivate the relevant actors to implement the new law (Renold, Caves, et al. 2019).

According to Fligstein (2001) “[s]killed social actors are pivotal for new fields to emerge. They must find a way to translate existing rules and resources into producing local orders by convincing their supporters to cooperate and finding means of accommodation with other groups” (Fligstein 2001, p. 116). Hence, starting with a law in an effort to stimulate a common pattern of behavior in the pre-institutionalization phase is a risky endeavor and may lead to an enforcement deficit (Cupa 2012). We argue that such deficits can result from a lack of acceptance by the relevant actors, preventing the social institution from reaching beyond the pre-institutionalization phase (Tolbert and Zucker 1999).

For each function along the CVC, Figure 5 displays an analysis of one social institution in a hypothetical VET program. It shows that social institutions can differ in the current phase within the institutionalization process (Tolbert and Zucker 1999) and have either a narrow or broad representativeness (Leslie and Clunan 2011), illustrated by the columns in each social institution's matrix. In addition, the rows show the four properties of social institutions (Miller 2019 [2007]) and how they differ across cells, highlighted in darker colors for more robust properties.

Figure 5. Assessment of social institutions in a hypothetical VET program



Notes: Green bars show the assignment of the social institution fulfilling the respective function to a phase of the institutionalization process (Tolbert and Zucker 1999) and to a certain degree of representativeness (Leslie and Clunan 2011); own depiction.

As an example, the robustness of the social institution carrying out the qualification standard (CD1) function is easy to identify across contexts. Hypothetically, that institution may be a council of employment and education representatives with the legal mandate to develop standards. The robustness of its properties affects the color filling the boxes in Figure 5:

- It has a *robust function* if actors from both the education and employment systems are willing to cooperate and work in defining standards and are aware of their goal.
- It has a *robust structure* if the roles and responsibilities are clearly defined—either regulatively, normatively, or cultural-cognitively.
- It has a *robust culture* if actors share attitudes and values in their common patterns of behavior—for example willing to find a consensus during development of the curriculum standard.
- It has a *robust sanction* if there are clear consequences for any actor rejecting on finding an agreement.

The two dimensions affect the column where properties' colors are placed. In the temporal dimension, this social institution is fully institutionalized if it is a longstanding body with historical continuity. Spatially, the institution is narrow if the standard is developed only for one school district, or broad if schools throughout the whole country use that standard.

According to our earlier hypotheses, an individual social institution is robust when all of its properties are robust (solid green in Figure 5), when it is fully institutionalized, and when it is broad in scope. That is the case for the *information gathering* (CF1) social institution in the example. Other institutions are weak, very weak, or showing potential (i.e. *selection mode*, CD2, or *selection*, CA3). At the individual institution level, the interpretation of this analysis shows that some institutions can become stronger by advancing institutionalization, others by increasing scope, others by strengthening properties, and others through a combination of dimensions. At the program level, this example program has social institutions of diverse strengths and with different levels of potential. Therefore, strengthening the weak institutions may be a first priority for this example program. Extending from our earlier hypotheses, we argue that

H5: A robust VET program must be robust in every single social institution and coordinate actors from education and employment systems.

This field-specific approach is an initial step towards developing a measurement instrument that assesses social institutions' robustness in VET and identifies the conditions under which policymakers can stimulate transition from a less robust to a robust institution. However, only empirical results can test our hypotheses, assessing the effectiveness of our theoretical frameworks and methodological approach. Measurement and testing at the empirical level are a pending issue for future research.

6. Conclusion and Outlook

6.1 Conclusion

This paper develops a theoretical framework of social institutions and proposes a methodological approach for applying that framework to measure social institutions' robustness. Drawing on the institutionalism approaches of Miller (2019 [2007]), Tolbert and Zucker (1999), and Leslie and Clunan (2011), we argue that social institutions vary in their robustness, which affects an institution's effectiveness at its function. Together, the framework and methodological approach help us answer the general sociological question of the conditions under which robust social institutions emerge from the need for solving a fundamental problem through collective patterns of behavior (Coleman 1990).

We hypothesize that social institutions are more robust when they have strong functions, structures, cultures, and sanctions (Miller 2019 [2007]). They are also more robust when they are further along the institutionalization process (Tolbert and Zucker 1999) and broader in scope (Leslie and Clunan 2011). For an institution to be effective at its function, we hypothesize that it must be robust in all properties and dimensions. After applying the theoretical framework to a specific social field with multiple social institutions working together, we also hypothesize that a robust group of institutions is composed of robust institutions.

We further demonstrate the application of our generic theoretical framework and methodological approach in the social field of education and training. By drawing on field-specific theoretical concepts, we identify social institutions through functional equivalents in VET programs. Using the CVC, we derive the key functions representing the essential contributions of social institutions to VET programs across countries. These functions lead us to the social institutions that carry them out, and then we apply

the theoretical frameworks and methodological approach to each social institution individually.

In the future, our proposed frameworks and approaches contribute to the investigation of the conditions under which VET programs can improve the income of the youth through VET programs. We argue that only those VET programs with robust social institutions fulfilling all seven main functions and organizing a common pattern of behavior among actors from the education and employment systems can successfully prepare young people for labor market entry.

6.2 *Limitations, future research and outlook*

This paper develops a theoretical framework for measuring social institutions, along with a corresponding methodological approach. This framework is a necessary precondition for the empirical measurement of social institutions' robustness and their comparisons across contexts. However, the validation of our theoretical framework through empirical testing is open for future research. Therefore, the main limitation of this theoretical framework is its lack of supporting empirical evidence.

In addition, the theoretical framework is limited to the identification of single social institutions and assessment of their robustness, and does not discuss the relationships among those institutions or institutional configurations. According to Miller (2019 [2007]), dedicated meta-institutions evolve out of the need for coordinating single institutions. Thus, further research should first develop a theoretical framework for measuring those relationships or meta-institutions.

Relationships among institutions are particularly important in VET. Future research in this field should identify and describe the relevant relationships among the already-identified social institutions in VET. Upon that theoretical framework, further empirical work can develop an appropriate instrument to assess relationship or even

whole-program robustness. Through repeated analyses across countries, scholars can empirically derive the importance of such relationships and the weight of each relationship. Together, the total robustness of individual social institutions and the total robustness of the relationships among those institutions enables comparison of the overall robustness of different VET programs. This will be an important source for answering the main question under what conditions VET programs can improve youth labor market outcomes like income or decent jobs.

Applying our theoretical framework to the specific field of VET programs may be another limitation of this paper. In some countries, these programs are only of minor importance, therefore having limited effects on youth labor market outcomes. However, the generic theoretical framework and methodological approach are broad in scope and scholars can apply them to social institutions in further education and training programs or even in other social fields. Such an analysis must begin by selecting a specific field, finding the appropriate unit of analysis, develop a theoretical framework to define the functional equivalents required to maintain that unit, and finally using the functions of the identified equivalents to identify social institutions. Only then can scholars apply the theoretical framework and methodological approach to assess the robustness of those institutions.

6.3 Relevance for reforming education and training programs

On a policy level, assessing and comparing VET program's social institutions and their configuration is a *conditio sine qua non* for developing reform strategies. These social institutions govern the main VET actors, their roles, and their relationships. Thus, measuring the robustness of social institutions in VET programs helps reform leaders understand the conditions under which they can improve those programs and make evidence-based policy decisions.

Furthermore, the seven key functions we identified along the VET curriculum process allow policymakers and reform leaders understand the contributions of social institutions that affect programs' outcomes. In addition, these key functions provide a starting point for the identification of different solutions towards functions or collective ends, such as institutional strategies (Luhmann 2010) or institutional norms (Coleman 1990).

For policymakers and reform leaders, evaluating the strengths and weaknesses of VET programs through the lens of new institutionalism may be a revelation when improving education and training programs. Furthermore, the empirical application of our theoretical frameworks and methodological approach helps them identify the successes and diagnose the challenges among a VET program's multiple social institutions.

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