Chapter #31

ECO-POLITICAL RULE AWARENESS IN CHILDHOOD

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ABSTRACT
Do preschool and primary school children already have a "political consciousness"? Furthermore, how is this expressed? A focused study examines ecological awareness in the context of the interdisciplinary research project "PoJoMeC", funded by the Federal Agency for Civic Education in Germany. The theoretical basis of the research presented here is Bronfenbrenner's (1979) ecological model of human development. However, we understand this development as shaped by a process of medial orientation (cf. Johnson, & Puplampu, 2008). Our study concretizes the question of political consciousness to the socioecological rule awareness of nine students from upper primary school classes (grade 4). Methodologically, we focus on the children's explicit knowledge, subjective theories, media sources of information, and their concepts of rule-guided action.

Keywords: political thinking, early education research, ecological theory of human development, eco-political awareness.

1. INTRODUCTION

Climate change, peace, sustainable development, and inclusive participation of different groups in our society are just some of the tasks that UNESCO (2019, 2021) has summarized in the *17 Sustainable Development Goals*. They deal with protecting the environment, keeping people healthy and social diversity. This diversity is to realize human rights. Such goals require acceptance by society if they are to be realized. Active participation in social reality depends on the political understanding of citizens. However, this requires knowledge and general political awareness, which is already conveyed and acquired in childhood (Paulus, & Schmidt, 2018).

We understand "politics" as communicating and acting to establish and enforce generally binding regulations and decisions within and between people. Creating an awareness of what this responsibility means and what role everyone should play in it is a central educational goal. We have described the theoretical framework within which civic education must be conceptualized (Marci-Boehncke, Rath, Goll, & Steinbrecher, 2022). This civic education must begin early because political attitudes, beliefs, and stereotypes also develop in early childhood and are challenging to change throughout life (Smetana et al., 2012; Smetana, Jambon, & Ball, 2018).

For modern society, moreover, media play a central role in conveying and further developing a worldview and thus also in safeguarding democracy (Milner, 2002; Marci-Boehncke, Rath, Delere, & Höfer, 2022). Language is just as important as images, films, and other forms of communication. Thus, we advocate a broad concept of media that goes beyond a purely technical perspective. The world, and thus potentially every citizen, is internationally networked. Global citizenship education in the digital age depends on knowledge of the initial conditions of political thought. Formally, these points seem

researchable regarding developmental psychology (Wegemer & Vandell, 2020). Knowledge about what children understand by politics and whether or what political competencies they bring to preschool and primary school and develop when they move on to secondary school is still limited. Empirical research seems particularly difficult in this age group. Given the children's rudimentary writing and reading skills, studying larger cohorts seems impossible (cf. van Deth, Abendschön, Rathke, & Vollmer, 2007). In contrast, higher school age is already well researched (cf. Hunter, & Rack, 2016; Rowe, 2005; Flanagan, 2013).

The heterogeneities of the research, the target group, the scientific questions, and the wide-ranging object field initially suggest a multimethod approach. Based on earlier studies (Marci-Boehncke, & Rath, 2013), we could draw on experience in child-oriented questioning (interviews) and with playful approaches. Recently, we extended this range of methods by picturizing strategy (Tkotzyk & Marci-Boehncke, 2022; Tkotzyk, Lategahn, & Marci-Boehncke, 2022). Symbolic picture cards are used in this process (cf. van Deth et al., 2007, pp. 119-160). In our study presented here, in addition to the environmental policy topics that children choose, they are also an entry point for discussing the social and media frame of reference of policy rules.

Therefore, this study is to be understood as a pretest, primarily intended to validate the methodological side of our overall project. The group studied is homogeneous in terms of age and type of school. The specific age is relatively high compared to the cohorts of our target group. This point is to ensure that the media orientation of the children focused on in our study, especially television as the medium most used, is developed. Current studies show that in Germany the lower target group age (4-5 years), TV is used for around 26 minutes a day (Kieninger, Feierabend, Rathgeb, Kheredmand, & Glöckler, 2021, pp. 14-15), while the upper age segment (6-9 years) watches 68 minutes (Feierabend, Rathgeb, Kheredmand, & Glöckler, 2023, pp. 37-74). Therefore, we chose the homogeneous age group of 9-year-olds as the starting point for the project to be described here.

2. SOCIAL FRAME OF REFERENCE AND MEDIAL MEDIATION

With a social frame of reference, we emphasize the different social systems people open up for themselves during their development. These frames of reference expand in the context of ontogenetic development. Uri Bronfenbrenner (1979) has differentiated five systems, beginning with the *microsystem* directly surrounding the child through the *mesosystem*, *exosystem*, *macrosystem*, and *chronosystem*. The macrosystem and exosystem include, among other things, the state political organization and the related ideological attitudes and beliefs that determine a policy. The mesosystem provides the institutional bridge between the micro- and macrosystems and determines the institutional framework of the microsystem and its actors.

In our study, we restrict ourselves to the three main systems micro-, meso- and macrosystem. The microsystem is the closest social framework that extends directly beyond the individual, such as the family with parents. That is followed by the mesosystem, which includes the first educational institutions such as kindergarten, school, and later peers. Finally, the macrosystem is a system of general social order in which general laws apply that we represent in our study through Germany. These systems, conceived concentrically by Bronfenbrenner, provide the material, each of varying complexity, for developing a child's political consciousness. However, the politically relevant aspects, the increasing social integration of the child into existing social structures and their regularity, remain strictly separated in the systems. Vélez-Agosto, Soto-Crespo, Vizcarrondo-Oppenheimer, Vega-Molina, and García Coll (2017) have developed a more open model of human

development. Here, culture, with language and communication in its various manifestations, has a comprehensive function in the expanding structure of social relations. The extension of Bronfenbrenner's system model by Johnson and Puplampu (2008) is in the same direction. They add to the innermost circle of the microsystem a "techno-subsystem" of medial communication that encircles the individual and shapes interactions with the world and others. This medial subsystem symbolizes medial presence from early childhood (Marci-Boehncke & Rath, 2013). In the media-influenced microsystem, technological symbolization becomes the central mediator of regularity (cf. Navarro & Tudge, 2023).

To capture the political awareness of rules, we focused on the topic repeatedly discussed in families, educational institutions, and the public in the wake of the *17 Sustainable Development Goals*: the protection of the environment. We focused on Capra's (2012) "ecological awareness" or "ecological consciousness" (O'Sullivan & Taylor 2004) of children. With Capra (2012), we argue that "ecological literacy" is a critical educational goal in the school mesosystem and that "ecological awareness" is a good conversation starter to capture children's political awareness. Many studies on sustainability education over the last 15 years also point to the political importance of this topic (cf. Güler Yıldız et al., 2021).

3. METHODS

In this qualitative study, nine students (five male, four female) were interviewed individually. For reasons of comparability, children of the same age (9 years old) and grade 4 elementary school ("fourth grade" in German "Grundschule") were interviewed.

In preparation, various picture cards were spread out on a table. To start the interview, the topic of the interview and the three levels, based on Bronfenbrenner's "Ecological Model of Human Development" (1979), were addressed. Three larger maps depicting a family, a school, and Germany (symbolically in the form of a map of Germany, in the colors of the country's flag) represented the three environmental systems selected for the study: microsystem, mesosystem, and macrosystem. In addition, a series of picture cards were available to the students as possible conversation starters, all related to the theme of "environmental protection and conservation". The children could choose between illustrated rules, such as waste separation, and between the causes and effects of climate change due to progressive environmental pollution. During the interview, the respondents were motivated to select picture cards and discuss them intuitively. The learners' explicit knowledge, which is relevant in education for sustainable development, should become apparent. A total of eleven topic areas were visualized: (1) Buying regionally and seasonally, (2) Eating consciously and sustainably, (3) Renewable energy sources, (4) Saving resources, (5) Minimizing CO_2 consumption, (6) Protecting and preserving forests, (7) Protecting animals and preserving biodiversity, (8) Avoiding environmental and marine pollution, (9) Avoiding (plastic) waste, (10) Recycling, and (11) Separating waste.

The children decided which topics were addressed in the respective interviews by selecting a picture card. With defined guiding questions, the children were encouraged to explain which of the rules and consequences they already knew and to whom they applied. In the further course of the survey, by assigning the picture cards to the respective system levels, it was checked whether the children already had an awareness of rules about environmental topics. The goal was to design the dialog so the subjects were encouraged to reflect on the rules by asking questions.

Within the evaluation framework, however, the respondents' statements were not sharply evaluated concerning the individual. We interpret the respondents as representatives of a specific group, characterized by a certain homogeneity (age, school class) and thus

comparability (cf. Hennink & Kaiser, 2022). Given the small number of respondents, we are not interested in the individuals but in the number and content of statements we can assign to ecological-political awareness. Therefore, we analyze the responses regardless of the individual source. In what follows, we name the interviewees for ease of reference, but they are irrelevant as individuals. Therefore, the pool from which we draw our analyses does not include nine sources (the interviewees) but a total of 364 thematically and systematically relevant text segments. The following Table 1 differentiates the number of clearly attributable segments by system level.

Table 1.
Number of segments in the social reference systems micro-, meso-, macrosystem.

	microsystem	*mesosystem*	*macrosystem*
Which rules are known?	12	1	56
Who makes the rules?	1	2	22
Rule makers: institutions (family, school, political institutions)	1	2	4
Who told the children about the rules?	2	1	12
Source: media	2	0	3

4. FINDINGS

The following section presents the children's responses at various social levels. The children's statements were translated directly since the interviews were conducted in German. The transcripts are numbered. An "M" before the number means it is a transcript of an interview with a girl, and a "J" means an interview with a boy. The evaluated interview segments are also numbered and abbreviated with "seg.".

4.1. Rule Awareness in the Microsystem

The twelve statements ("segments") in the microsystem listed in Table 1 are distributed among nine interviewees. They thus use such rules, which were familiar to them from their families, as a starting point for conversation. Two interviewees each referred to the topics "Conscious, sustainable nutrition", "Saving resources", "Minimizing CO_2 emissions", or "Recycling". In one interview each, the topics "(plastic) waste avoidance" and "waste separation" were central components of the rules in the children's families. The other areas still needed to be addressed.

When asked what rules the children knew from home, interviewee M2 answered, for example, "(...) that living vegan is healthier, for the environment and also for oneself" (M2, seg. 12). It is thus clear from the transcript of the interview with M2 that she assigns a conscious or sustainable diet to the micro level. J3 also refers to this topic at the beginning of his interview (J3, seg. 8). Overall, 16.7% of the evaluated segments on the rules at the micro level refer to a vegan or sustainable diet.

In each case, 16.7% of the coded segments are also distributed among the topics of "saving resources", "minimizing CO_2 consumption", "avoiding the environment and marine pollution", and "recycling". "During the week, we are not allowed to use a tablet so often because it also consumes electricity" (J3, seg. 127). Here, the interviewee, like his classmate M4, expresses that they know the rule of "saving resources" in the form of keeping electricity and water consumption low from home: "So, that when you take a shower, for example, you do not take a shower for so long because that uses water" (M4, seg. 96).

Only in one of the nine interviews was it discussed who made the rules at the family level. J1 stated that his parents made the rules at home (J1, seg. 113). The source to which the interviewees attributed their rule knowledge at the microsystem was also only outlined in one of the nine interviews. M2 stated that she generated her information regarding a healthy and sustainable diet as well as the topics "recycling", "waste separation", and "waste avoidance" from the media, which in her case consisted of television and radio (see M2, seg. 18; 32).

4.2. Rule Awareness in the Mesosystem

Remarkably, only one interview mentioned rules in the mesosystem, such as school and peers. That will be discussed separately in chapter 6. In the evaluated interviews, only J1 mentions public transport as a relevant environmental protection measure connected to the mesosystem "school". He believes that the school bus is a more environmentally friendly transport option than "would any mother or father now drive every child extra" (J1, seg. 72-74). He assumes this "uses a lot more fuel". The remaining eight respondents did not mention any environmental issues relevant to them at the mesosystem. When asked who makes the rules at school, J1 named his "teacher" (J1, seg. 117) and "the principal" (J1, seg. 124). These rules were recorded as a poster of class rules (see J1, seg. 137).

4.3. Rule Awareness in the Macrosystem

Rules and topics relevant to environmental protection at the macrosystem, i.e., those that apply to all people (or here, considering the children's reference to their living environment, to people in Germany), were mentioned several times in all interviews. In the following, the topics that were covered are presented.

The goal of minimizing CO_2 emissions was the most frequently mentioned rule related to environmental protection measures at the macrosystem, accounting for 17.5% of the coded segments. For example, J5 notes in his interview "that there is quite a lot of CO_2 in our world" (J5, seg. 32). Therefore, "maybe you shouldn't drive your car so much or ride your bike or something", M4 also thinks (M4, seg. 72). J3 also thinks, "There are things everywhere where gas comes out, gas comes out here, nuclear power plants are that" (J3, seg. 80). These exhaust gases and the environmentally harmful substances in them "(...) pollute the air" (J13, seg. 64), the children agree. The rule assigned second most often in the interviews to the macrosystem, with a seg. share of 15.8%, is to avoid environmental and marine pollution. That primarily includes (plastic) waste disposed of in the environment (see J1, seg. 27; J5, seg. 16), especially in the sea (see J1, seg. 148; M2, seg. 38; J3, seg. 112; M4, seg. 25; J5, seg. 38; J13, seg. 22).

With a frequency of 14.0%, statements that concern the measure "protect and preserve forests" follow. Both J1 and four other children state "that you don't put out fires and you don't just leave glass in the forest" (J1, seg. 28-29; J3, seg. 52; M4, seg. 16; M9, seg. 54; J11, seg. 14) and that you "have to take care of the forests" (M2, seg. 56). J3 also believes that "it is also very important not to cut everything down in the forests" (J3, seg. 122). Thus, forest fires, deforestation, and the general threat to the world's forest areas and the need to preserve them is also an essential topic for the learners, given the interviews they have already evaluated.

12.3% of the aspects mentioned at the macrosystem also refer to renewable energy sources. The statements on this topic are often closely related to switching to an electric car (see J3, seg. 38) or producing electricity or energy. The children suggest a change or the use of electric cars as well as a sustainable production of electricity as a solution. "If the sun shines on it, then there is internet, and internet is also needed in the world" (J1, seg. 35-36).

For J3 and J13, solar power plants also belong to renewable and thus environmentally friendly energy sources (see J3, seg. 38, 42, 70 and J13, seg. 50). J13 also mentions wind power plants. According to M9, coal-fired power plants harm the environment (see M9, seg. 28).

"Animal welfare" was mentioned with a frequency of 10.5% as a rule everyone (in Germany) should follow. According to J1, M2, J3, M4, and M9, animals are particularly endangered by improper disposal of waste in their habitats "because the animals then eat that and then die from it" (J1, seg. 29-30; see also M2, seg. 40; J3, seg. 54; M4, seg. 31; M9, seg. 38).

The topics of "sustainable use of resources", "recycling", and "waste separation" are covered equally frequently in the nine interviews, at 8.8% each. According to M4 (see seg. 108), M9 (see seg. 44), M12 (see seg. 42), and J3 (see seg. 106), resources to be used sparingly include water, while M9 also point out that "you should turn off the lights to save electricity" (M9, seg. 16).

"Turn old into new" is known to respondents J3 (see seg. 137), M9 (see seg. 42), J11 (see seg. 20), M12 (see seg. 48), and J13 (see seg. 36). Four children also mention waste separation as a rule that should be followed at the macrosystem. J1 explains: "So, for example, organic waste like apples, pears or bananas or something goes in the organic waste. Plastic goes in the plastic garbage like everything that is made of plastic. Paper, all things that are made of paper, we should throw in the paper garbage" (J1, seg. 158-161). The opinion is also shared by J3 (see seg. 56), M9 (see seg. 38), and J11 (see seg.s 22 and 58). Instead of proper disposal, the general avoidance of (plastic) waste came up with 3.5% only during the interviews with M2 (see M2, seg. 26) and J3. J3 justifies as follows: "So plastic, it can't degrade on its own" (J3, seg. 62).

"Conscious/sustainable nutrition" was not addressed at the macrosystem. Moreover, as was already the case at the micro- and mesosystem, seasonal and regional food shopping was again not a relevant topic of discussion for the students.

Each of the nine interviewees attempted to explain who makes the rules in Germany and who is involved in legislation and compliance with the laws. Thereby, "Olaf Scholz and Angela Merkel" (J1, seg. 176-177), representing the position of Federal Chancellor, were, for each of the interviewees, without doubt, the authoritative persons responsible for the determination of the rules on the macrosystem (see M2, seg. 66; J3, seg. 92; M4, seg. 84; J5, seg. 66; M9, seg. 92; M12, seg. 80; J11, seg. 64; J13, seg. 74). 44.44% also knew that the Bundesrat as well as the Bundestag, i.e., the two chambers of the German parliament, were also involved (see M2, seg. 64; J3, seg. 98; M12, seg. 86; J13, seg. 84).

One-third of the respondents suspected that the police played a role in this (see J1, seg. 193; J11, seg. 74; M12, seg. 90). Two respondents each believed that politicians in general and courts play this role (see J1, seg. 198; M2, seg. 64; J11, seg. 62; M12, seg. 88). J5 believes "the whole state" (J5, seg. 70) is responsible for the rules for people in Germany.

Overall, seven out of nine interviewees talked about the origin of their macrosystem rule knowledge. In four interviews, laws were stated as the basis for the respective rule knowledge at the macrosystem. Two interviewees each stated that they had obtained information regarding the environmental protection rules that everyone in Germany should adhere to from the media or because of their school education. J13 and J5 stated they did not know how they knew a rule (see J13, seg. 28, 40; J5, seg. 54).

The macrosystem segments assigned to impacts on nature and the environment were the most represented, with a frequency of 38.8%. For example, J1 stated that not following the rules at the macrosystem "is not so good for the environment" (J1, seg. 97). Reasons given include dumping trash in the ocean (see M2, seg. 76), melting glaciers (see J3, seg. 131),

drying up bodies of water (see J3, seg. 102), degrading air quality (see J3, seg. 86), and damaging our atmosphere (see J3, seg. 82). The occurrence of forest fires (see M4, seg. 17) and natural disasters such as floods (see J11, seg. 44) were also cited. These aspects all appeared several times and in different interview sequences.

With a share of 22.5% of the assigned statements, the impact on animals follows. 18 statements of the students deal with the reduced welfare of the animals and their extinction if not everyone would follow the rules (see M9, seg. 61).

Consequences for humans were mentioned with a frequency of 17.5%. Topics such as injustice (see M2, seg. 74), lack of resources (see J3, seg. 133), illness (see J3, seg. 50), and reduced quality of life (see J3, seg. 122). The reduction of living space (see J11, seg. 56) played a central role. Climate change and global warming were addressed in 10% of the statements. Interviewee J3 knows, for example: "The earth is getting warmer, and there are more and more exhaust gases in the air" (J3, seg. 84). M4 also directly links the melting of the polar ice caps to climate change: "There's a polar bear on an ice floe because that's also climate change because now it's melting because it's getting so warm" (M4, seg. 46). In 8.8% of the statements, however, it is evident that the students are partially unaware of the consequences of (not) acting ecologically responsibly (see M4, seg. 52).

5. DISCUSSION

Overall, there was an exciting asymmetry in terms of the breadth of rule awareness and the idea of the origin of the rules. The children were given picture cards and a lead-in to the interview that focused on rules related to environmental protection issues. Eleven themes were presented to the children and visualized through picture cards. According to Bronfenbrenner, these eleven topics were also specified on three social reference levels and introduced again in each case: microsystem "family", mesosystem "school", and macrosystem "Germany". That is, the eleven topics were offered a total of 33 times. In addition, key questions were asked to record the children's awareness of rules at each system level. These questions were answered as follows (see Table 2):

Table 2.
Key questions on the reference levels.

key questions	*level*	*given answers*
who makes the rules?	microsystem	parents / children / all together
	mesosystem	school principal / teacher
	macrosystem	the society / parliament / politicians / court / police / German Chancellor / unknown
rule origin	microsystem	parents / idols / role models / media / unknown
	mesosystem	classroom rules / media / education system
	macrosystem	education system / media / laws / unknown
consequences from rules	for all three system levels	effects on the interviewee himself / on animals / on all humans / on nature / climate change and global warming

Children participate in public discourse on political issues and political responsibility at a very young age (cf. Berton, & Schäfer, 2005). They show awareness of numerous ecological issues and can reproduce relevant lines of argument. They understand a healthy environment as a community concern and emphasize the need for mindful use of resources. They are familiar with rules as a framework for orientation in social contexts. They believe such political rules should be binding and that rule violations can also be punished. They still need to clearly distinguish between the legislative, executive, and judicial branches of government and tend to associate specific individuals rather than offices with responsibilities.

6. CONCLUSION

Two aspects, in particular, are interesting for our study: The response sequences reflect the broad medial "techno-subsystem" (Johnson, & Puplampu, 2008). At all three ecological systems, media (newspapers, television, radio, Internet) are named as sources for rule knowledge, but not books. That shows that media not only determine childhood today as a matter of course but that in the various systems, these media are also explicitly introduced by the social mediating instances as a justification instance and a source of information. On the mesosystem, on the other hand, no media appear as sources at all since the originators of the rules that apply here are solely institutionalized persons, namely the school principal and the teachers. They have the license of rule definition due to their social position in the system. An additional source of rule knowledge is unnecessary.

The second relevant aspect is the conspicuous lack of argumentative responses in the mesosystem. The children indeed possess detailed information about overall social reasoning (as also shown by naming the originators of rules). We also assume that the familial rules are experienced as valid as a matter of course and can be named. The school mesosystem, on the other hand, is left out. The school cannot be neglected as a mediating instance of rules (especially since education is explicitly mentioned several times). However, in contrast to the immediate experience of the family, the macrosystem of society is only present to the students in a mediated way. This mediating function is assumed by the family and the media insofar as they are received and discussed in the family, and above all, by the school in the context of ecological education. However, the school needs to integrate these general rules of the macrosystem into its own rules. The statements of the children interviewed indicate that the school, unlike the family, does not operationalize these rules as a mesosystem. With Buchanan-Barrow and Barrett (1998), we assume this is due to a particular structure of the school mesosystem. Where the school provides information beyond the rules that apply to it, as a mesosystem, and that our school rules in the narrow sense, it does refer to rule validity, rule origin, and rule actors in the macrosystem. However, the school does not come into view as its own rule instance in relation to these rules of the macrosystem. It mediates without offering an operational realization in its institution for the children (cf. Thornberg, 2008).

An example would be the demand on the part of the school for waste separation in the classroom. That would practice a macrosystemic orientation mesosystemically. It will be an essential aspect of our further research to further analyze this mediating function of the mesosystem, especially regarding a school-based thematization of the medial regular offers.

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