Rethinking Democratic Citizenship Education: Ambiguity Tolerance as a Neglected Future Competence

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Abstract

In times of increasing social and political complexity, the ability to endure and productively engage with ambiguity is gaining relevance. However, ambiguity tolerance remains a marginal concept in democratic citizenship education up until now. This paper addresses this gap and argues that ambiguity tolerance should be given greater consideration as a foundational competence in confronting societal challenges and shaping democratic citizenship education. Given that the competencies of teachers precede and influence the development of competencies of students, this paper presents empirical data collected on ambiguity tolerance among pre-service teachers, both with and without a specialized focus on democratic citizenship education. The findings provide insight into the current levels of ambiguity tolerance among future educators and suggest possible implications for improvement in educational learning processes. Against the backdrop of pressing societal challenges, ranging from overlapping crisis phenomena and the spread of disinformation to public debates on resilience and future viability, the paper explores the conceptual implications for democratic citizenship education.

Keywords: tolerance of ambiguity, democratic citizenship education, pre-service teachers' competencies

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Introduction

The present cannot be understood as a sequence of isolated crises. The term “polycrisis”, established in the social and political sciences, refers to the mutual reinforcement and systemic interdependence of multiple crises with new consequences for governance, social cohesion, and individual lifestyles (Lawrence et al., 2024, Morin & Kern, 1999). These dynamics particularly affect democratic orders; caught between the pressure to accelerate decision-making on the one hand and deliberative requirements on the other, democratic institutions are increasingly forced to justify themselves, public trust in them erodes, and polarization increases (Scholtz, 2024). At the same time, globalization, medialization, and digital transformation are changing the conditions of political representation and public life. Critical analyses also locate polycrises in economic and social structures, such as growth-driven appropriation of nature and asymmetrical power relations that reproduce crises (Brand & Wissen, 2017; Brand & Wissen, 2024). This makes the polycrisis a twofold challenge: analytical-systemic and institutional-democratic.

This creates an area of tension for democratic citizenship education. It should offer guidance without smoothing over ambiguities, as future issues such as climate, migration, and digital transformation involve permanent uncertainty that cannot be eliminated by simple solutions (Friedrichs, 2024). In this context, ambiguity tolerance is not a “soft” secondary skill, but a prerequisite for democratic capacity to act. It enables people to deal productively with dissent, contingency, and provisional solutions.

Teacher training is crucial for strengthening ambiguity tolerance. If teachers' competences are to precede those of their students, the ambiguity tolerance among prospective teachers will determine whether teaching simply reduces complexity for didactic purposes or actively exploits it as a learning resource. Low tolerance for ambiguity favors unambiguous logic and high tolerance for ambiguity opens up avenues of inquiry and multi-perspective judgment. Against this backdrop, the article presents empirical findings on the tolerance for ambiguity of pre-service teachers and discusses conceptual connections for democratic citizenship education that strengthens maturity, reflective ability, and judgment under conditions of polycrisis.

Ambiguity Tolerance: A Psychological and Pedagogical Concept

The concept of ambiguity tolerance has its origins in post-war personality research. Else Frenkel-Brunswik (1949) defined “intolerance of ambiguity” as an emotional and cognitive disposition that describes the extent to which individuals can tolerate ambiguous or contradictory situations without rushing to resolve them. Ambiguity tolerance thus refers to the ability to tolerate ambiguity and integrate it in a reflective manner. In so-called authoritarian personality research, ambiguity intolerance was identified as a central personality trait that corresponds to authoritarian, ethnically exclusive, and dogmatic worldviews (Adorno et al., 1950).

Over the following decades, the focus shifted from a clinical-social psychological perspective to a cognitive-emotional one. McLain et al. (2015) show that ambiguity tolerance is now understood as a relatively stable individual difference that predicts short- and long-term reactions to complex, unfamiliar, confusing, indeterminate, and incomplete. This means that ambiguity tolerance is a stable but learnable and developable disposition that determines how people react to uncertainty. The associated trait-vs-competence debate marks a central turning point. While classical personality psychology views ambiguity tolerance as a lasting

temperamental trait (Budner, 1962), more recent approaches emphasize its learnability and changeability as a metacognitive ability. Drawing on De Vries (2021), ambiguity tolerance can be understood both as a relatively stable personality disposition and as a competence that can be fostered through reflective and dialogical learning processes.

An important further development comes from Grenier et al. (2005), who systematically distinguish ambiguity tolerance from intolerance of uncertainty (IU). While ambiguity intolerance refers to present ambiguity, uncertainty tolerance refers to anticipatory uncertainty in the future: “IA refers to a static component embedded in the present. Individuals who are intolerant of ambiguity are unable to tolerate a ‘here and now’ situation characterized by equivocal or ambiguous features. [...] IU refers to an unpredictable component that is future oriented” (p. 596).

This makes it clear that ambiguity tolerance is primarily a present-oriented competence. It describes the ability to deal with contradictory information, competing interpretations, and incomplete data without resorting to hasty simplifications. From a psychological perspective, ambiguity tolerance is a cognitive and emotional ability to integrate contradictions productively rather than resolve them. McLain et al. (2015) make it clear that ambiguity triggers neural and emotional activation, which in turn stimulates cognitive processing: “The lack of information, therefore, induces anxiety which initiates cognitive effort to resolve the ambiguity. The degree that anxiety is generated in response to an indefinite collection of data received about a situation is ambiguity tolerance and is a stable trait of the individual” (p. 2). Ambiguity tolerance can therefore be understood as a balance between emotional arousal and cognitive regulation. It is an ability not to avoid emotional uncertainty, but to transform it into learning and judgment processes. Studies show that high ambiguity tolerance correlates with greater openness, curiosity, and prosocial behavior (Vives & FeldmanHall, 2018).

In education, the concept was further implemented by Krappmann's (2005, pp. 87-88) sociological dimensions of identity. For him, ambiguity tolerance is a prerequisite for successful identity formation and social role assumption. It enables individuals to reflect on contradictory expectations in interactions, to endure role conflicts, and to develop differentiated self-concepts. In this sense, education means not avoiding experiences of difference but rather working through them in dialogue. From an educational theory perspective, ambiguity tolerance is therefore a key competence of democratic learning cultures. Schrader and Brandt emphasize that learning in an age of ambiguity requires living with contradictions and working with them productively (Schrader & Goeze, 2023, p. 19). Democratic citizenship education therefore does not aim at clarity, but at the ability to understand complexity, diversity of perspectives, and normative tensions as normal.

The Council of Europe's Reference Framework of Competences for a Democratic Culture (RFCDC) (Council of Europe, 2018) defines ambiguity tolerance accordingly as “an attitude towards objects, events and situations which are perceived to be uncertain and subject to multiple conflicting or incompatible interpretations” (p. 45). People with high tolerance for ambiguity respond positively to this uncertainty and seek constructive ways of dealing with it. As the RFCDC (Council of Europe, 2023) emphasizes, this is not merely a matter of endurance, but of active cognitive and material coping. The sub-aspects, e.g., recognizing and acknowledging multiple perspectives, accepting complexity, contradictions, and ambiguities, and the willingness to act despite incomplete information, mark the operational dimension of this competence.

Ambiguity tolerance can thus be described as a psychologically grounded, emotionally regulated, and pedagogically cultivable competence. It promotes critical thinking, reflective thinking, and discursive thinking, and thus central prerequisites for democratic decision-making, judgment and political action.

Related Concepts and Differentiation

The theoretical clarification of ambiguity tolerance requires a distinction from related concepts. Five reference constructs are primarily mentioned in research: In addition to intolerance of uncertainty (see above), these are need for cognitive closure (NCC), ambivalence, uncertainty avoidance, and the connection with creativity and problem solving.

The closest relationship exists between ambiguity tolerance and IU. While the former describes the reaction to present ambiguity, IU refers to anticipatory anxiety about future uncertainty (Grenier et al., 2005). IU is thus more future-oriented and rooted in clinical psychology, whereas ambiguity tolerance aims at the reflexive integration of present contradictions.

The concept of need for cognitive closure (Kruglanski & Fishman, 2009) describes the need for quick, clear answers. People with high need for cognitive closure strive for cognitive closure in order to avoid ambiguity. In educational contexts, this difference is central; teachers with low need for cognitive closure design learning processes that are more open and less focused on results (Gärtner et al., 2020).

The term ambivalence refers to the simultaneous experience of contradictory feelings, while ambiguity refers to objective ambiguity (de Vries, 2021). This distinction is pedagogically significant because ambiguity tolerance does not seek to resolve emotions, but rather to process them reflexively.

Cultural-systemic differences are described by uncertainty avoidance (Hofstede, 1984). Societies with high uncertainty avoidance tend toward stability and rule orientation, while lower values favor openness and flexibility. Ambiguity tolerance is thus not only individual, but also socially and culturally anchored (OECD, 2024).

Finally, creativity research points to the productive nature of ambiguity, as ambiguity acts as a catalyst for creative thinking (Gabora, 2016; Roy et al., 2017). Ambiguity tolerance thus forms the basis for divergent thinking, reflective ability, and innovative problem solving.

Ambiguity tolerance is therefore not synonymous with arbitrariness, but rather an expression of a conscious, reflective approach to ambiguity; it is a core competence of democratic judgment and professional pedagogical action.

Ambiguity Tolerance Among Pre-service Teachers

Building on the understanding of tolerance of ambiguity as a core competence for democratic citizenship education, the following section examines the extent to which pre-service teachers already possess this competence. This approach is grounded in the assumption that teachers must first themselves master the competences they are expected to foster in their students.

For this purpose, we conducted a study on tolerance of ambiguity among pre-service teachers between 2024 and 2025. Our study pursued three main objectives: (1) to descriptively assess

the level of tolerance of ambiguity in this population, (2) to examine whether pre-service teachers studying subjects related to democratic citizenship education exhibit higher levels of tolerance of ambiguity compared to other pre-service teachers as well as the general population, and (3) to evaluate the empirical validity of the RFCDC descriptors (Council of Europe, 2018a) with respect to tolerance of ambiguity.

Data was collected using an online questionnaire. In addition to demographic information (gender, federal state, target type of school targeted in teacher training, and enrollment in a subject related to democratic citizenship education), the questionnaire included two scales to measure tolerance of ambiguity:

1. The German-language version of the Tolerance of Ambiguity Scale (TAS) in its reduced version with eleven items covering four subdimensions (diversity, change, challenge, unfamiliarity) (Lietz, 2023),
2. A scale derived from the descriptors of the RFCDC (Council of Europe, 2018a), which was operationalized in the form of a ten-point Likert scale with eight items across three subdimensions (elementary, intermediate, advanced).

Recruitment was carried out via posters and mailing lists at universities in Baden-Württemberg, Bavaria, Lower Saxony, and North Rhine-Westphalia, making participation entirely voluntary. A total of 261 students participated, predominantly from Bavaria (n = 159) and North Rhine-Westphalia (n = 86). Participation from Lower Saxony (N = 14) and Baden-Württemberg (N = 2) was limited. The proportion of female respondents was significantly higher (n = 183) compared to male respondents (N = 74) and respondents stating diverse or non-binary gender affiliation (N = 4). In terms of target school type, the majority of participants were studying to become teachers for academic secondary schools (“Gymnasium”) (N = 97), followed by participants studying to become elementary school teachers (N = 80). Students from the first to the 20th semester were represented, with the first semester being the most strongly represented (n = 91) (Table 2). 177 participants studied a subject related to democratic citizenship education, 82 did not (Table 1).

Table 1
Description of the Sample

Variable	**n**	**%**
Gender		
– Female	183	70.1
– Male	74	28.3
– Diverse / non-binary	4	1.5
Target school type		
– Academic high school (Gymnasium)	97	37.1
– Elementary school (Grundschule)	80	30.7
– Special needs school (Förderschule)	30	11.5
– Lower secondary school (Hauptschule/Mittelschule)	23	8.8
– Secondary school (Realschule)	17	6.5
– Other*	14	5.4

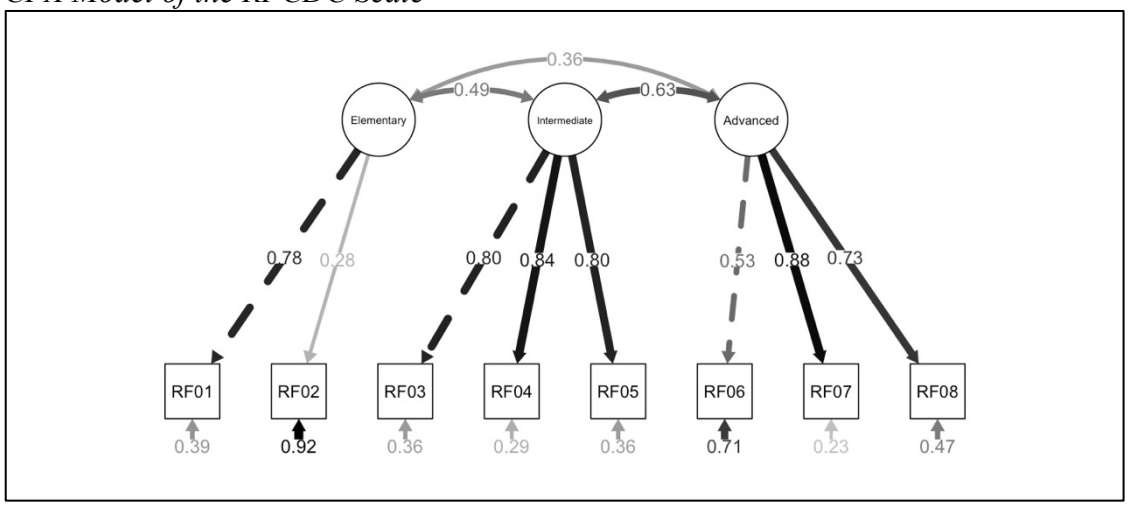
State		
– Baden-Württemberg	2	0.8
– Bavaria	159	60.9
– Lower Saxony	14	5.4
– North Rhine-Westphalia	86	32.9
Civic / Citizenship education as a school subject		
– Yes	177	67.8
– No	82	31.4
– Not specified	2	0.8

Note. *The category "Other" includes vocational school (n = 9), integrated comprehensive school (n = 1), and others / not specified (n = 4). All percentages are rounded.

The adapted RFCDC scale demonstrated good internal consistency (Cronbach's α = .80; McDonald's ω = .87). A confirmatory factor analysis (CFA) using maximum likelihood estimation was conducted (Figure 1), specifying three correlated latent factors corresponding to the RFCDC cognitive levels (elementary, intermediate, and advanced). The model showed good to excellent fit to the data, $\chi^2(17) = 25.64$, p = .081, CFI = .99, TLI = .98, RMSEA = .04 (90% CI [.00, .08]), SRMR = .04. One item at the elementary level (RF02: "I can temporarily refrain from judging others") exhibited a comparatively weaker standardized factor loading (λ = .28, p = .035), suggesting that indicators at the elementary level may capture broader or less differentiated expressions of tolerance of ambiguity. In contrast, factor loadings for the intermediate and advanced levels were consistently strong, ranging from .73 to .88. Correlations among the latent factors were moderate to strong (r = .36–.63), supporting the conceptual relatedness of the cognitive levels while also indicating their empirical distinctiveness. Finally, the RFCDC scale showed a significant, moderate correlation with the TAS-scale (r = .47), providing evidence of convergent validity and confirming substantial overlap in the constructs assessed by the two measures.

Figure 1

CFA Model of the RFCDC Scale



The mean TAS score in the study sample (M = 3.00, SD = 0.46) differed significantly from the overall sample reported by Lietz (2023; M = 2.90, SD = 0.54), as indicated by a Welch's t-test ($p < .01$). Significant differences were also observed in comparisons with several subgroups reported by Lietz (2023), including respondents younger than 40 years and those with low or medium levels of education. In contrast, no notable differences emerged when comparing the present sample with the subgroup of highly educated respondents (M = 2.99, SD = 0.56; $p = .77$) (Table 2 and 3).

Table 2
Sample Values of the TAS and RFCDC Scales

Item (TAS)	**M (TAS)**	**SD (TAS)**	**Item (RFCDC)**	**M (RFCDC)**	**SD (RFCDC)**
TA01	3.15	0.93	RF01	6.85	1.76
TA02	2.86	1.00	RF02	7.01	2.10
TA03	3.00	1.08	RF03	6.23	2.15
TA04	2.56	1.07	RF04	6.02	1.98
TA05	2.93	0.94	RF05	6.18	2.00
TA06	3.32	0.94	RF06	6.22	2.13
TA07	3.36	0.95	RF07	5.84	2.21
TA08	4.13	1.04	RF08	6.11	2.08
TA09	3.48	1.29			
TA10	2.12	0.73			
TA11	2.11	1.01			
Total (TAS)	3.00	0.46	**Total (RFCDC)**	6.31	1.32

Table 3
Comparison of TAS Scale Values Between the Sample and the Reference Values in Lietz (2023)

	n	M	SD	p
Sample TAS study	261	3.00	0.46	–
Sample TAS - Lietz (2023)	1370	2.90	0.54	< *.01*
- Age group < 40 years	360	2.88	0.50	< *.01*
- Low level of education	210	2.76	0.47	< *.01*
- Medium level of education	422	2.82	0.52	< *.01*
- Higher level of education	738	2.99	0.56	= .77

Note. Comparison always between the entire sample of the study and the individual reference values. Test statistic based on the Welch t-test.

Group differences in TAS and RFCDC scores were examined using Welch's t-test as well. Pre-service teachers studying democratic citizenship education as a subject reported slightly higher mean scores on both the TAS (M = 3.05, SD = 0.47) and the RFCDC scale (M = 6.44, SD = 1.34) compared to those not enrolled in such subjects (TAS: M = 2.93, SD = 0.44; RFCDC: M = 6.05, SD = 1.25). Although small, both differences were statistically significant ($p < .05$). Additional group differences were also observed with respect to gender. Male participants reported higher levels of tolerance of ambiguity than female participants on both scales (TAS: M = 3.15, SD = 0.44 vs. M = 2.94, SD = 0.46; RFCDC: M = 6.94, SD = 1.15 vs. M = 6.06, SD = 1.30), with both differences reaching statistical significance ($p < .01$). No further notable differences were found for either scale with respect to school type, semester of study, or federal state.

In summary, the findings indicate that pre-service teachers exhibit significantly higher levels of tolerance of ambiguity than the general population in Lietz (2023). However, this difference disappears when comparisons are restricted to shares of the population with higher levels of education. Accordingly, there is no evidence that pre-service teachers demonstrate greater tolerance of ambiguity than other highly educated groups. Furthermore, no correlations were found between tolerance of ambiguity and either the duration of studies or the type of school for which pre-service teachers are preparing. A small but statistically significant difference was identified between pre-service teachers studying democratic citizenship education and those who do not.

However, given that the sample primarily includes participants from two German federal states, these results cannot yet be generalized to pre-service teachers in other regions of Germany or to other countries. Further studies with more diverse samples are therefore necessary to assess the robustness of this finding. Moreover, the underlying mechanisms remain unclear. Possible explanations include self-selection effects among students choosing democratic citizenship education, or a more central role - direct or indirect - of tolerance of ambiguity within these study programs. Finally, the tolerance of ambiguity scale derived from the RFCDC (Council of Europe, 2018a) demonstrated satisfactory reliability and largely sound psychometric

properties, although certain items require critical revision. In combination with the established convergent validity with the TAS scale, these results suggest that the RFCDC descriptors are mostly empirically grounded. This empirical anchoring is particularly relevant for educators and teacher educators who employ the framework in educational practice.

Conclusion: On the Necessity of Fostering Ambiguity Tolerance Among (Future) Teachers

As future teachers, students will later become key multipliers of democratic learning cultures. However, low tolerance for ambiguity could lead them to push for clarity and clear solutions in the classroom, thereby undermining democratic negotiation processes. The study results suggest that tolerance for ambiguity should be anchored as an explicit target in teacher training. Democratic citizenship education needs teachers who not only tolerate ambiguity, but also use it as a didactic resource.

Ambiguity tolerance is not an individual disposition, but a professional attitude that combines cognitive, emotional, and social dimensions. It enables teachers to use difference and contradiction as didactic resources—for example, by encouraging learners to take different perspectives, reflect on uncertainties, and question preliminary judgments. Such an attitude is a basic prerequisite for democratic learning cultures that focus not on quick answers but on joint search movements.

The findings suggest that tolerance of ambiguity has been a neglected future competence to date, even though it is central to dealing with polarization, plurality, and social transformation. Democratic citizenship education must therefore understand it more as a cross-cutting task. Until now, the promotion of ambiguity tolerance has hardly been pursued as an independent learning goal in democratic citizenship education. There is a particular gap in teacher training: if prospective teachers do not learn to deal with ambiguity productively, there is a risk of a return to unambiguous logic in the classroom, which undermines complex social negotiation processes.

Teacher training should therefore not only implicitly teach tolerance of ambiguity, but also explicitly recognize it as a future competence. In all phases of training, it is important to create learning opportunities in which students can experience ambiguity, tolerate it, and make it pedagogically fruitful. Ambiguity tolerance must therefore be included as a core objective in the curricula of teacher training and democracy education. Only in this way can future teachers accompany ambiguous students in a pluralistic, conflict-ridden society without reducing complexity or moralizing diversity.

Teachers who are tolerant of ambiguity promote democratic citizenship education that focuses not on clarity but on judgment, dialogue, and democratic maturity, thereby laying the foundation for a sustainable democracy.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

Generative AI and AI-assisted technologies were used in the writing process of this paper to improve the language and readability.

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