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CHILD DEVELOPMENT

EMPIRICAL ARTICLE

Critical, active, and well adapted: Antecedents and consequences of adolescents' critical consciousness profiles

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Abstract

This preregistered study aimed to identify antecedents and consequences of adolescents' critical consciousness (CC) profiles with person-centered approaches based on data from 663 ethnically diverse German adolescents collected from 2017 to 2019 (M_{age} = 12.91, 50% male, 50% female). Latent profile analyses of adolescents' critical reflection and interpersonal and structural critical action intentions yielded three profiles: "uncritical," "armchair activists," and "actionists." Discrimination experiences, but not CC classroom climate, predicted a higher likelihood of being in the armchair activist or actionist profiles. The actionist profile showed better, but the armchair activist profile worse socioemotional and academic adaptation cross-sectionally and over time (vs. the other profiles). The results highlight the potential of person-centered approaches and of fostering developmentally appropriate forms of critical action among adolescents in novel contexts.

In times marked by persistent racism and discrimination and a rise in right-wing populist movements around the globe, it is crucial to understand how adolescents prepare to navigate and challenge inequitable societies. Critical consciousness (CC) is an important developmental asset in this broader context. CC refers to how individuals critically reflect on social inequity (critical reflection), perceive that they can contribute to social change (political efficacy), and engage in actions to challenge inequity (critical action). Integrative reviews suggest that CC contributes to positive socioemotional and academic adaptation, particularly among adolescents from minoritized ethnic or racial groups (Heberle et al., 2020). These important developmental consequences motivate identifying what fosters CC. Empirical antecedents of CC in prior research include, but are not limited to, a classroom climate in which social inequity is discussed (Bañales et al., 2019; Schwarzenthal et al., 2022), as well as adolescents' discrimination experiences—in that interpersonal racism can be understood as reflective of and connected to structural racism (Anyiwo et al., 2018; Tyler et al., 2020).

Although CC is conceptualized and measured as a construct comprising the interrelated components of critical reflection, action, and political efficacy (Freire, 1970; Heberle et al., 2020), the majority of research has taken a variable-centered approach (i.e., investigating relations between variables, assuming the population is homogeneous with regards to these relations; Laursen & Hoff, 2006). To better understand how the components of CC co-occur and to capture the multidimensional nature of CC, we employed a person-centered approach. Person-centered approaches investigate whether there are subpopulations in a population that share certain patterns or profiles of characteristics (Spurk et al., 2020; Weller et al., 2020). Initial research taking a person-centered approach to study CC has identified four different patterns of adolescents' CC that

Abbreviations: BIC, Bayesian information criterion; BLRT, bootstrapped likelihood ratio test; CC, critical consciousness; FIML, full information maximum likelihood; ICC, intraclass correlation; LMR-LRT, Lo–Mendell–Rubin likelihood ratio test; SABIC, sample-size adjusted BIC; SES, socioeconomic status.

differentially associate with socioemotional and academic adaptation (Godfrey et al., 2019). In sum, person-centered approaches advance our understanding of CC by identifying patterns or "types," which complement our (predominantly) variable-centered knowledge.

More broadly, the present study builds on prior research and expands previous knowledge in several ways: First, we respond to calls to recenter critical action in CC research (Diemer et al., 2021) by including measures of adolescents' critical action intentions at interpersonal and structural levels (Aldana et al., 2019; Taylor, 2020; Wray-Lake & Abrams, 2020). Second, beyond demographic categories, such as being a member of a marginalized group (Godfrey et al., 2019), we examined individual and contextual predictors of latent profile membership (i.e., discrimination experiences, CC classroom climate). Third, whereas most CC research has used cross-sectional approaches (Heberle et al., 2020), we investigated longitudinal relations between adolescents' CC latent profiles and their socioemotional and academic adaptation. Fourth, we examined whether antecedents, patterns, and consequences of CC identified in the US can also be identified in Germany, a context in which CC has been understudied so far (for an exception, see Schwarzenthal et al., 2022). Despite the current scarcity of CC research in Germany, persistent social inequities along the lines of migration status, culture, religion, and ethnicity (Aikins et al., 2021; SVR-Forschungsbereich, 2016, 2018) suggest that CC may also act as a developmental asset in this context. Fifth, we included three groups of adolescents assumed to experience high (Muslims, people with heritage from Turkey or Arabic-speaking countries, Black Germans), medium (other adolescents of non-German heritage), and low (adolescents with only German heritage) degrees of stigmatization in German society. Thus, we acknowledge that CC may also be important for more privileged adolescents (Diemer et al., 2016).

Components and patterns of CC

CC is conceptualized as consisting of critical reflection (i.e., an awareness of oppressive systems and a critical analysis of structural roots of inequities) as well as critical action (i.e., individual or collective actions against oppression; see Freire, 1970). Some conceptualizations include political efficacy, also termed critical motivation or critical agency, as an additional component (i.e., the perception that social and political change is possible and can be brought about by citizens; Heberle et al., 2020; Jemal, 2017). However, this study references Freire's original conceptualization, which focuses on critical reflection and action and postulates that these reciprocally shape each other. Specifically, critical reflection is assumed to promote critical action, which in turn is assumed to further promote critical reflection (Freire, 1970). However, empirical findings differ, with some observing positive relations (Bañales et al., 2020; Diemer & Rapa, 2016) and others no relation (Tyler et al., 2020). Critical reflection may only translate into critical action in the presence of existing opportunity structures (Watts & Flanagan, 2007) and social support to engage in action (Tyler et al., 2020). If critical reflection is not translated into critical action, this may result in so-called "armchair activists" who are aware of social inequity but do not act much upon their perceptions (Diemer & Rapa, 2016; Watts & Flanagan, 2007).

This suggests CC patterns differ and may be best investigated with person-centered approaches. For example, subgroups of adolescents may show high (or low) critical reflection and action or a combination of high critical reflection and comparatively low critical action, reflecting an armchair activist profile. Conversely, some adolescents may engage in actions against inequity (e.g., by attending demonstrations along with their friends) without much reflection, calling into question whether these actions can truly be considered "critical." Person-centered approaches, such as latent profile analysis, are ideal for addressing research questions involving qualitatively different configurations of variables (Spurk et al., 2020). For example, they may help distinguish which adolescents engage in action that is grounded in critical reflection and which adolescents merely act "uncritically."

Most CC research employed variable-centered approaches that do not account for individual differences in patterns of CC. Notable exceptions include McWhirter and McWhirter (2016), who divided 13- to 19-year-old Latinx adolescents into groups displaying the highest critical agency and critical behavior and the lowest critical agency and critical behavior, and Godfrey et al. (2019), who identified four latent classes of adolescents' CC in a sample of racial and ethnic minority early adolescents in the US. The four classes showed similar endorsements of critical action (i.e., the importance youth placed on future action on behalf of the community), but varied across critical reflection and political efficacy, illuminating the heterogeneity of CC profiles.

Building on Godfrey et al. (2019), we examined whether different CC profiles could be identified among adolescents in Germany. Moreover, we respond to Godfrey et al.'s (2019) call for further person-centered research that includes more developmentally tailored assessments of adolescents' critical action. Most research on adolescents' critical action has focused on structural critical action (e.g., attending demonstrations). However, particularly for younger adolescents, opportunities to engage in structural forms of critical action are limited. Therefore, some researchers examine intended rather than actual actions among this age group (Heberle et al., 2020). Moreover, actions at a more proximal level (e.g., intervening in discrimination in one's immediate environment) are an important and developmentally appropriate form of critical action (Aldana et al., 2019;

Taylor, 2020; Wray-Lake & Abrams, 2020), because these are more accessible and salient for younger adolescents. Therefore, in our study, we assessed adolescents' intentions to engage in structural critical action (e.g., by attending demonstrations) and intentions to engage in interpersonal critical action (e.g. intervening in discrimination). Figure 1 provides an overview of these measures as well as the conceptual framework for this study.

Antecedents of CC

Freire (1970) emphasized discussions and exchanging personal experiences with oppression as important antecedents of CC development. Reflecting on experiences of marginalization and discussing these may build awareness of the conditions and causes of social inequity (Diemer et al., 2016). Thus, they may promote adolescents' ability to "read the world" (Freire, 1970). Along these lines, discrimination experiences and a CC classroom climate (e.g., discussing marginalizing social conditions and how to respond to those conditions) are antecedents of adolescents' CC (Heberle et al., 2020). Moreover, it is reasonable to assume that adolescents belonging to differentially stigmatized groups in German society might differ in their critical reflection and action levels.

Discrimination experiences and membership in a marginalized group

Experiences with discrimination and marginalization may affect the development of CC. Experiencing or observing racial or ethnic discrimination can prompt adolescents to reflect on how different racial or ethnic groups are treated in society more broadly (Anyiwo et al., 2018). Accordingly, discrimination experiences are positively associated with critical reflection and action among racially diverse adolescents in the US (Tyler et al., 2020) as well as with activism orientation among Black youth in the US (Hope et al., 2019). Even though scant research has examined antecedents of CC in the German context, it is likely that discrimination experiences may also prompt CC among adolescents in Germany. Yet, as most previous research used variable-centered approaches, we do not know if discrimination experiences linearly foster critical reflection and action, or if they can also result in "disheartened" adolescents who are highly aware of discrimination and social inequity, but do not engage in action.

Traditionally, CC has been investigated among adolescents experiencing discrimination and marginalization. However, CC may also be relevant among more privileged adolescents (Diemer et al., 2016). Whereas discrimination experiences that have been recognized and self-reported as such by adolescents are rather consistently related to adolescents' CC, membership in a marginalized group, by itself, is less consistently related to CC. Some studies found higher (Godfrey & Grayman, 2014; Schwarzenthal et al., 2022), lower (Diemer et al., 2019), and similar (Bañales et al., 2019) levels of CC among youth from more marginalized groups (e.g., Youth of Color) compared with those from more privileged groups (e.g., white youth). Reasons for inconsistent relations may be that within marginalized groups, adolescents face different amounts of discrimination

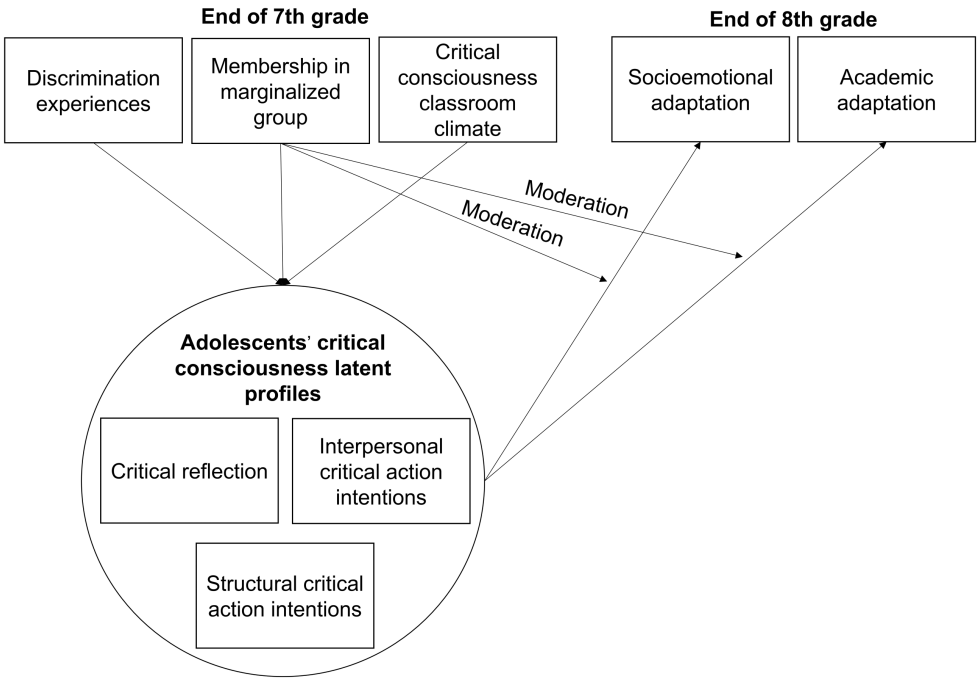

FIGURE 1 Antecedents and consequences of critical consciousness latent profiles.

and may not always recognize and label it as such, for example, if social contexts do not facilitate conversations about discrimination and inequity (Anyiwo et al., 2018; Bañales et al., 2019). White and socioeconomically privileged adolescents generally attend schools that provide more support and space for reflecting on structural inequities (Flanagan et al., 2014; Kornbluh et al., 2019), which may also explain why more privileged adolescents may demonstrate higher levels of CC (Diemer et al., 2019). Examining associations between membership in a marginalized group and adolescents' CC in Germany requires taking into account which groups experience marginalization in this particular context. As Muslims, people with heritage from Turkey or Arabic-speaking countries, and Black Germans experience particularly high amounts of discrimination in Germany (Aikins et al., 2021; SVR-Forschungsbereich, 2018) we consider these to be a group experiencing high stigmatization. Due to "othering" experienced by people with non-German heritage (Elrick & Schwartzman, 2015), we consider adolescents with other heritages to be a group experiencing medium stigmatization. Moreover, we consider adolescents with only German heritage to be a group experiencing lower stigmatization. Whereas we acknowledge that socioeconomic status (SES) is also an important dimension of stigmatization, the critical reflection and action measures used in this study specifically refer to perceiving and redressing inequity based on different heritage cultures. Thus, we decided to focus on heritage culture as the central dimension of stigmatization in our study. Nevertheless, heritage culture and SES in our sample were strongly intertwined (see "Participants and Procedure" section).

CC classroom climate

Schools are an important context to discuss experiences with discrimination and social inequity. In classrooms with a strong CC climate, teachers address social inequity and social justice, promote awareness of social issues, and encourage adolescents to talk about the roots and implications of social inequity and systemic racism (Byrd, 2017; Schachner et al., 2021). In such a classroom climate, racially and ethnically diverse adolescents in the US reported more involvement in anti-racism action (but not higher critical reflection; Bañales et al., 2019), and both non-Muslim as well as Muslim adolescents in Germany reported more perceived societal Islamophobia and higher intentions for critical action (Schwarzenthal et al., 2022). In an interview study with 70 adolescents in the United States (most of whom were Youth of Color), adolescents reported that their critical reflection and action increased because teachers introduced theoretical frameworks for understanding racism and inequity and adolescents had opportunities to educate each other about issues related to social inequity (Seider et al., 2018). Person-centered approaches may advance this literature by assessing whether learning about social inequity in class, which may remain rather theoretical, fosters armchair activists who reflect on social inequity but do not act to address it, or whether it promotes profiles marked by high critical reflection and action.

CC and socioemotional and academic adaptation

CC is theorized to be a developmental asset for adolescents facing oppression. Recognizing that systemic factors constrain one's life may prevent adolescents from locating deficits within themselves and encourage them to challenge marginalizing systems (Heberle et al., 2020). Empirically, relations between CC and adaptation depend on the facet of CC, the type of adaptation, and the participants' membership in a marginalized group (Heberle et al., 2020; Maker Castro et al., 2022). Maker Castro et al.'s (2022) systematic review of relations between CC and well-being concludes that most studies identified positive links between critical reflection and critical motivation with better mental and socioemotional health, positive youth development, and fewer risk behaviors, particularly among Youth of Color.

Research investigating the link between adolescents' CC and academic adaptation mainly observed positive associations, along with some negative associations, with most studies focusing on Youth of Color (for a review, see Heberle et al., 2020). In addition to the studies included in the review by Heberle et al. (2020), Seider et al. (2020) observed that Youth of Color who began high school with higher critical reflection and action obtained higher SAT scores in their final year of high school. Moreover, growth in the adolescents' critical reflection and action predicted a higher GPA at the end of high school. Even though most findings point to positive relations between CC and academic adaptation, studies differ strongly with regard to how CC was measured, making it difficult to draw robust conclusions.

The few studies using person-centered approaches help to shed light on the complex relationship between CC and socioemotional and academic adaptation. Godfrey et al.'s (2019) study suggests that the combination of high critical reflection and low external political efficacy may be detrimental to adolescents' adaptation. However, this relation was not observed when critical reflection was paired with high external and mid to high internal political efficacy. Similarly, adolescents in McWhirter and McWhirter's (2016) study with the highest critical agency and critical behavior showed higher school engagement and better grades than those exhibiting the lowest critical agency and behavior. Thus, the combination of critical reflection and political efficacy or critical action may be crucial for adolescents' positive adaptation.

However, most of the variable-centered and person-centered research on relations between CC and

adaptation is cross-sectional, making it difficult to draw robust conclusions regarding how CC may be related to socioemotional and academic adaptation over time (Heberle et al., 2020; Maker Castro et al., 2022). Moreover, there is little research on the developmental consequences of CC in the German context. As German society is marked by persistent social inequities among cultural, ethnic, and religious groups, we expect that CC will similarly act as a developmental asset by empowering adolescents to recognize and strive against existing inequities. Moreover, as positive relations between CC and socioemotional and academic adaptation have mainly been observed among Youth of Color, we expect that CC is more likely to act as a developmental asset for those adolescents who experience higher amounts of stigmatization in the German context.

The present study

In this study, we aimed to (1) investigate adolescents' CC latent profiles, including indicators of their interpersonal and structural critical action intentions, (2) examine individual and contextual predictors of adolescents' latent profile membership (i.e., discrimination experiences, membership in a marginalized group, CC classroom climate), and (3) investigate longitudinal relations between adolescents' CC latent profiles and their socioemotional and academic adaptation (see conceptual model in Figure 1). Our preregistered (confirmatory) hypotheses and exploratory research questions are:

Based on previous research (Godfrey et al., 2019), we expected to find three to four latent CC profiles (*Hypothesis 1*). As discrimination experiences and CC classroom climate were positively related to adolescents' critical reflection and action in previous research (Bañales et al., 2019; Schwarzenthal et al., 2022; Tyler et al., 2020), we expected that discrimination experiences (*Hypothesis 2a*) and a CC classroom climate (*Hypothesis 2b*) would predict membership in profiles with a more highly developed critical reflection or action. Findings regarding the relationship between membership in a stigmatized group and adolescents' CC have been inconclusive, therefore, we explored associations between membership in a marginalized group and CC profile membership. We expected that adolescents in profiles marked by high critical reflection *and* action would show the most positive socioemotional and academic adaptation (*Hypothesis 3a*) and that relations between profile membership and adaptation would be stronger among adolescents belonging to higher (vs. lower) stigmatized groups (*Hypothesis 3b*). Finally, we explored how other CC profiles which do not show high critical reflection *and* action are associated with socioemotional and academic adaptation.

The present study is situated in Germany and focuses on inequity along the lines of migration status, culture, religion, and ethnicity, which are often used in a racialized way in this specific context. Germany only recently recognized that it is a "country of immigration" (Juang et al., 2021). For a long time, its national self-understanding was built on the presumed cultural homogeneity of its population (Schneider, 2018). However, Germany is a highly diverse country, with about one fourth of the population being of "migrant background" (i.e., they themselves or at least one of their parents was born without German citizenship). The major heritage countries are Turkey, Poland, and the Russian Federation (Statistisches Bundesamt, 2020). Whereas the construct of "race" is typically not assessed, due to historical meanings of race in Germany, the category of "migrant background" is commonly used, for instance, for official statistics (Juang et al., 2021). This category is also frequently employed to demonstrate educational disparities between students of "migrant and nonmigrant background" (SVR-Forschungsbereich, 2016). These disparities are partly explained by the strong intertwinement of migrant background and lower SES, which entails a double disadvantage (SVR-Forschungsbereich, 2016).

In daily discourse, the term "migrant background" is used as a marker of difference for "non-Germanness" and has been criticized for projecting "otherness" on descendants of immigrants (Elrick & Schwartzman, 2015). Moreover, the term is too broad to capture specific cultural, ethnic, or religious identities and discrimination experiences (Vietze et al., 2022). Recent data show that cultural, ethnic, and religious inequities and discrimination experiences persist in German society, with Muslims, people with heritage from Turkey or Arabic-speaking countries, and Black Germans facing particularly high amounts of discrimination (Aikins et al., 2021; SVR-Forschungsbereich, 2018). Thus, it is crucial to investigate how adolescents in this context learn to perceive and redress prevailing social inequities faced by different cultural or ethnic groups, and what consequences this may have for their socioemotional and academic adaptation.

METHOD

Preregistration of our hypotheses, a list of items, and syntax can be found in an open repository: https://osf.io/xak5p/?view_only=9265207002d34384bec6d6a56f405168.

Participants and procedure

Our longitudinal data set included three waves collected from 2017 to 2019 among diverse adolescents in an urban area of Germany. Data were collected as part of a study testing effects of a brief self-affirmation writing intervention (for details, see Supporting Information A). At

the beginning of seventh grade (wave 1), end of seventh (wave 2), and end of eighth grade (wave 3), adolescents filled out a self-report questionnaire during a 90-min school period. The CC variables were collected at the end of seventh and end of eighth grade. The Berlin Senate Committee for Education, Youth, and Science, the representative for data protection, and the university ethics committee granted approval. School principals and adolescents' parents or guardians gave their informed consent. At the end of seventh grade, $N = 663$ adolescents ($M_{age} = 12.91$, $SD_{age} = 0.85$, 49.9% male, 49.6% female, 0.5% missing) from 58 classrooms and 17 schools participated. Out of these, 14% attended an academic school track (*Gymnasium*), and 85% integrated school tracks (Integrated Secondary School or *Gemeinschaftsschule*), which combine the previous vocational and comprehensive German school types and offer options to obtain all school leaving certificates.

As the construct of race is typically not assessed in Germany (Juang et al., 2021), we drew on information on the adolescents' and their parents' heritage countries and religion to assign them to groups experiencing different levels of stigmatization in the German context. Based on research demonstrating differential levels of social inequity and discrimination experienced by different cultural, ethnic, and religious groups in Germany (Aikins et al., 2021; Elrick & Schwartzman, 2015; SVR-Forschungsbereich, 2018), we assigned adolescents with only German heritage to a group assumed to experience *lower stigmatization* ($N = 212$; $M_{age} = 12.79$; $SD_{age} = 0.72$; 49.5% female, 50.5% male), adolescents with heritage from Turkey, Arabic-speaking, or African countries and Muslim adolescents to a group assumed to experience *higher stigmatization* ($N = 288$; $M_{age} = 12.94$; $SD_{age} = 0.84$; 50.3% female, 49.3% male, 0.3% missing), and adolescents with other heritages to a group assumed to experience *medium stigmatization* ($N = 159$; $M_{age} = 13.01$; $SD_{age} = 1.00$; 49.1% female, 50.3% male; 0.6% missing). Specifically, the group assumed to experience *higher stigmatization* comprised 40.6% Turkish-heritage adolescents, 41.7% adolescents with heritage from Arabic-speaking countries, 5.2% adolescents with heritage from (non-Arabic-speaking) African countries, and 85.4% Muslim adolescents (with the latter group partially overlapping with the former three groups). The group assumed to experience *medium stigmatization* mainly comprised adolescents with Eastern European heritage (62.6%), but also those with heritage from Western, Northern, or Southern European countries (17.4%), Asian countries (12.3%), Australia (1.3%), and the Americas (6.5%).

We assessed adolescents' SES by calculating a factor score combining the Family Affluence Scale (Boyce et al., 2006; German version by Richter & Leppin, 2007) with the number of books in the household (Bos et al., 2003). The latter was included to not only capture wealth but also educational resources in the family. Adolescents with Turkish, Arabic-speaking, African, or Muslim heritage ($M_{SES} = -0.48$, $SD_{SES} = 0.93$) on average had lower SES than those with other immigrant heritages ($M_{SES} = 0.24$, $SD_{SES} = 0.94$; $p < .001$) or those with only German heritage ($M_{SES} = 0.42$, $SD_{SES} = 0.87$; $p < .001$), whereas the latter two groups did not differ significantly from each other ($p = .18$), $F(2, 544) = 55.63$, $p < .001$. This supports the assumption that the former group experiences more structural disadvantage in German society.

Simulation studies (Nylund et al., 2007) and reviews of past latent profile analyses (Spurk et al., 2020) considered sample sizes around $N = 500$ adequate to identify latent profiles reliably. Thus, our sample size of $N = 663$ provides sufficient power.

Measures

Latent profile indicators (critical reflection, interpersonal and structural critical action intentions) and predictors (discrimination experiences, membership in a marginalized group, CC classroom climate) were assessed at the end of seventh grade. Latent profile outcomes (socioemotional and academic adaptation) were measured at the end of eighth grade, and we controlled for the lagged measures from the end of seventh grade. Unless otherwise stated, all response scales ranged from (1) *no, that is not right* to (5) *yes, that is right*. Confirmatory factor analyses confirmed adequate to a good fit of a one-factor model for each of the study scales, with factor loadings ranging between .41 and .94 (see Supporting Information B). For all measures, we calculated the mean score of all items to create a scale score. A full list of all items can be found in an open repository: https://osf.io/xak5p/?view_only=9265207002d34384bec6d6a56f405168.

CC latent profile indicators

Critical reflection

Five items captured adolescents' perceptions of the disadvantage faced by people from certain heritage cultures in German society (e.g., "People from certain heritage cultures have fewer chances to get a good high school education"). Three of these items were adapted from Diemer et al.'s (2017) CC scale, two were added for the present data collection to capture additional disadvantages faced by people from minoritized heritages in German society (referring to the housing market and dealing with authorities), $\alpha = .86$.

Critical action

Interpersonal critical action intentions. We adapted items from Titzmann et al.'s (2011) discrimination stress scale to measure adolescents' intentions to intervene on discrimination. These items are similar to the "Interpersonal Action" subscale from the Anti-

Racist Action Scale (Aldana et al., 2019). Six items captured how likely adolescents would intervene when observing discriminatory incidents at school (e.g. "if some classmates are rude to somebody because of their heritage culture"), on a scale from (1) *not at all likely* to (5) *very likely*, $\alpha = .97$.

Structural critical action intentions. Six items were created drawing on Diemer et al.'s (2017) CC scale and on items regarding adolescents' structural political actions in Germany (Eckstein et al., 2015; Lyons, 2008). Adolescents indicated how likely they would engage in certain actions in the future, such as "participating in a public event or demonstration for a political or social cause," using a scale from (1) *not at all likely* to (5) *very likely*, $\alpha = .87$.

Predictors of CC latent profile membership

Discrimination experiences

We used Titzmann et al.'s (2011) discrimination stress scale to capture adolescents' discrimination experiences. Factor structure and validity evidence were provided by Titzmann et al. (2011). Six items assessed how often the adolescents experienced certain events in the past year (e.g., "Other students were mean to me due to my heritage culture"), using a scale from (1) *never* to (5) *more than 10 times*, $\alpha = .89$.

CC classroom climate

We used the CC climate subscale of the Classroom Cultural Diversity Climate scale (Schachner et al., 2021), which comprises five items (e.g. "In school we talk about how the German school system does not offer the same opportunities to all adolescents"), $\alpha = .78$. Factor structure and validity were assessed by Schachner et al. (2021).

Outcomes of latent profiles

Socioemotional adaptation

Depressive symptoms and physiological stress. Depressive symptoms (e.g., "I feel unhappy and sad") and physiological stress (e.g., "I feel dizzy and faint") were captured using five items each (Berry et al., 2006). The response scale ranged from (1) *almost never* to (5) *very often*. Reliabilities were good for depressive symptoms (seventh grade: $\alpha = .84$, eighth grade: $\alpha = .86$), and physiological stress (seventh grade: $\alpha = .76$, eighth grade: $\alpha = .79$).

Life satisfaction. We used Diener et al.'s (1985) satisfaction with life scale that comprises five items (e.g., "I am satisfied with my life"); seventh grade: $\alpha = .86$, eighth grade: $\alpha = .85$.

Academic adaptation

Behavioral and emotional school engagement. Behavioral (e.g., "In class, I work as hard as I can") and emotional (e.g., "When I'm in class, I feel good") school engagement were captured with five items each drawn from Skinner et al. (2009). Reliabilities were good for both behavioral (seventh grade: $\alpha = .85$, eighth grade: $\alpha = .84$) and emotional (seventh grade: $\alpha = .83$, eighth grade: $\alpha = .84$) school engagement.

Reactions to academic challenges. Reactions to academic challenges were captured with four items from Skinner et al. (2009; e.g. "If a problem is really hard, I keep working at it"), with the response scale ranging from (1) *that is not right* to (4) *that is completely right*; seventh grade: $\alpha = .77$, eighth grade: $\alpha = .78$.

Disruptive school behavior. Disruptive school behavior was measured with five items from Jenkins (1995; e.g., "How often did you throw something around during class in the last 4 weeks?") with the response scale ranging from (1) *almost never* to (5) *very often*; seventh grade: $\alpha = .73$, eighth grade: $\alpha = .71$.

Control variables

As adolescents' CC is related to their own social positioning (Heberle et al., 2020), we controlled for gender (0 = *male*, 1 = *female*) and SES. If demographic information was missing, we drew on information from earlier waves to replace missingness. As the data set stems from an intervention study (see Supporting Information A), we controlled for intervention condition (experimental vs. control).

Analytic approach

We first ran missing data and attrition analyses and calculated descriptive statistics and intraclass correlations (ICCs), estimating the impact of classroom-level clustering on variables of interest. We then investigated whether the intervention condition was related to any of the variables used to form CC latent profiles. To test our hypotheses, we proceeded in three steps.

First, we ran latent profile analysis testing solutions with one to five profiles in Mplus 8, using the MLR estimator due to some univariate nonnormality in focal indicators (Muthén & Muthén, 2018). We selected a final model based on theoretical considerations, descriptive model statistics, and model fit indices (Nylund et al., 2007). Specifically, we investigated entropy (with values closer to 1 indicating clearer profile classification), log-likelihood, average latent class probabilities, information criteria (Bayesian information criterion [BIC], and sample-size adjusted

BIC [SABIC], with lower BIC and SABIC indicating better fit), as well as the likelihood ratio (G^2 statistic) difference test (bootstrapped likelihood ratio test [BLRT]), and the Lo–Mendell–Rubin likelihood ratio test (LMR-LRT; with a significant BLRT and/or LMR-LRT test indicating that the current model is a better fit than a model with one fewer profile; Nylund et al., 2007). After selecting a latent profile model, participants were assigned to their most likely profile membership based on their posterior probabilities. In follow-up analyses, we ran separate latent profile analyses in the three groups of adolescents assumed to experience different degrees of stigmatization to test whether the latent profile solution differed across groups.

Second, to clarify the antecedents of profiles, we predicted the resulting categorical latent profile variable using multinomial logistic regression. Control variables were entered into the model first, followed by predictors (e.g., discrimination experiences, membership in stigmatized groups, CC classroom climate).

Third, to clarify the consequences of profiles, we used latent profile membership to predict socioemotional and academic adaptation indicators 1 year later, using regression analysis. Control variables were entered first, followed by the lagged measures of socioemotional and academic adaptation, and the dummy-coded latent profile membership variables. In this model, we also estimated the within-time covariances between profile membership and adaptation outcomes. As a robustness check, we re-ran the analyses from steps 2 and 3 without control variables.

RESULTS

Missing data and attrition analyses

Little's test (Little, 1988) with the latent profile indicators and predictors at the end of seventh grade was not significant ($\chi^2(40) = 43.20$, $p = .34$), providing evidence in support of the missing completely at random assumption. We used full information maximum likelihood (FIML; Muthén & Muthén, 2018) to deal with missing data in the latent profile and regression analyses. However, attrition between the end of seventh and the end of eighth grade was not entirely random: Adolescents who dropped out at the end of eighth grade (33%) reported higher discrimination experiences and a lower CC classroom climate at the end of seventh grade. Therefore, we included these variables as auxiliary variables in a saturated correlates model (Enders, 2010), along with FIML, in our longitudinal analyses in Step 3 (for details on the missing value and attrition analyses, see Supporting Information C). Importantly, the auxiliary variables strategy cannot be combined with the other person-centered analyses.

Descriptive statistics and ICCs

Descriptive statistics and bivariate correlations are reported in Table 1. The ICCs of the latent profile indicators (critical reflection: .03, interpersonal critical action intentions: .09, structural critical action intentions: .05) indicated that the proportion of variance at the classroom level was overall low. As our research questions did not address the classroom level in particular, we proceeded without a multilevel modeling approach. However, we ran additional analyses considering the clustered data structure and introducing CC classroom climate at the classroom level as an additional predictor. This did not change the pattern of results and the predictors at the classroom level were not significant (see Supporting Information D).

Testing potential influence of intervention condition

As our data set was drawn from a brief self-affirmation writing intervention study (for more details, see Supporting Information A), we tested whether the latent profile indicators differed across the two intervention conditions and the control condition. A MANOVA indicated that they did not differ, ($F(6, 1096) = .84$, $p = .540$). For parsimony, the two intervention conditions were combined and a dummy variable (control vs. intervention) was included as a control variable in the main analyses.

Testing Hypothesis 1: Adolescents' CC latent profiles

To test the first hypothesis, LPAs were conducted with the whole sample in Mplus 8 (Muthén & Muthén, 2018) with critical reflection, interpersonal critical action intentions, and structural critical action intentions as continuous profile indicators. A model with three profiles was chosen as the best solution as it showed the best fit (i.e., suggested by the scree plot of the BIC and SABIC, see Supporting Information E, and barely increasing entropy in a four-profile solution, see Table 2) and was most in line with the theoretical expectations. The four-class solution did not add much information from a theoretical perspective (see Supporting Information E). In the three-profile solution, the average latent posterior probabilities were all above .88, which is considered acceptable (Weller et al., 2020).

The most salient difference across the three profiles were intentions for interpersonal critical action. In the first profile (37%), termed the "actionist" profile, adolescents showed the highest intentions for interpersonal and structural critical action out of the three profiles, with intentions for interpersonal critical action higher than

those for structural critical action. The adolescents' level of critical reflection was between the other two profiles. In the second profile (36%), termed the "armchair activists," adolescents showed the highest levels of critical reflection out of the three profiles (even though the difference to the actionists was not significant, see Figure 2), but, compared to the other profiles, average levels of interpersonal and structural critical action intentions. In the third profile (27%), termed the "uncritical" profile, adolescents showed the lowest levels of critical reflection as well as of interpersonal and structural critical action intentions out of the three profiles (see Figure 2 as well as Supporting Information E for the estimated means in the three latent profiles).

We also ran separate LPAs in the three subgroups of adolescents assumed to experience higher, medium, or lower stigmatization in society. In all three groups, the three-profile solution was acceptable and the profiles identified resembled those found in the whole sample (Supporting Information F). Therefore, we proceeded with the latent profiles obtained through the analyses with the pooled sample.

Testing Hypotheses 2a and 2b: Predictors of latent profiles

Adolescents with higher levels of discrimination experiences in seventh grade were almost two times more likely to be in the armchair activist or the actionist profiles (vs. the uncritical profile). Perceived CC classroom climate did not predict profile membership. Concerning our exploratory research question, adolescents assumed to experience higher stigmatization were approximately twice as likely to be in the actionist profile or the uncritical profile (vs. the armchair activist profile) compared with those assumed to experience lower stigmatization (Table 3).

Testing Hypotheses 3a and 3b: Consequences of latent profiles

To test Hypothesis 3a, we predicted socioemotional (physiological stress, depressive symptoms, life satisfaction) and academic (behavioral and emotional school engagement, reactions to academic challenges, disruptive school behavior) adaptation with control variables, lagged measures of socioemotional and academic adaptation, and profile membership. Those in the armchair activist profile (vs. those in the uncritical profile) showed decreased emotional school engagement 1 year later (see Table 4). Using a different reference group, those in the armchair activist profile (vs. those in the actionist profile) showed lower life satisfaction 1 year later (see italicized coefficients in Table 4 and Supporting Information H). For a less stringent test of longitudinal effects, which resulted in more significant associations, we ran additional analyses not controlling for adaptation at the previous time point (see Supporting Information G).

We also estimated within time or cross-sectional associations between the profile membership and initial adaptation levels. Since these are bivariate associations between a dummy-coded profile variable and outcomes at the same time point, the reference group is the other two profiles. Those in the uncritical profile showed lower depressive symptoms ($r = -.13$, $p = .002$), lower behavioral school engagement ($r = -.08$, $p = .037$), lower emotional school engagement ($r = -.11$, $p = .007$), and fewer reactions to academic challenges ($r = -.11$, $p = .005$) than the other two profiles at the same time point. Those in the armchair activist profile reported lower life satisfaction ($r = -.09$, $p = .024$), behavioral school engagement ($r = -.09$, $p = .027$), and emotional school engagement ($r = -.08$, $p = .049$) than the other two profiles at the same time point. Those in the actionist profile, on the other hand, reported higher life satisfaction ($r = .13$, $p = .001$), behavioral school engagement ($r = .16$, $p < .001$), emotional school engagement ($r = .18$, $p < .001$), and more positive reactions to academic challenges ($r = .18$, $p < .001$), as well as fewer disruptive school behaviors ($r = -.10$, $p = .016$) than the other two profiles at the same time point.

To test Hypothesis 3b, we also examined whether relations were moderated by membership in a stigmatized group. We found a significant positive interaction between being in the armchair activist profile and belonging to a group assumed to experience higher stigmatization (final model in Table 4). Specifically, armchair activists who belonged to a group assumed to experience higher stigmatization showed more positive reactions to academic challenges than armchair activists belonging to a group assumed to experience lower stigmatization, compared with uncritical youth (see Figure 3).

As additional robustness checks, we re-ran all analyses testing Hypotheses 2, 3a, and 3b excluding demographic and control variables (i.e., gender, SES, intervention condition). This did not change the pattern of results.

Additional, nonpreregistered exploratory analyses

As the context may moderate the relation between CC and adaptation (Maker Castro et al., 2022), we also examined whether CC classroom climate instead moderated the relation between CC latent profile membership and adaptation (as opposed to serving as a predictor of profile membership). We found a significant interaction whereby in classrooms with a higher CC climate, actionists showed more positive reactions to academic challenges than uncritical adolescents ($p < .001$). Only among actionists, a higher CC classroom climate was related to more positive reactions to academic challenges

TABLE 1 Bivariate correlations and descriptives.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. Gender (0=male, 1=female)	—	.02	−.01	−.01	.01	.14***	.11**	.14***	−.06	.03
2. Socioeconomic status (principal component analysis factor score)		—	−.05	.13**	−.41***	.00	.09*	.08	−.12**	−.03
3. Intervention (vs. control) condition			—	.04	−.06	.02	−.08*	.03	.01	.05
4. Medium stigmatization (dummy variable)				—	−.50***	−.02	.03	.02	.09*	.04
5. Higher stigmatization (dummy variable)					—	−.01	−.09*	−.03	.02	−.02
6. Critical reflection (seventh grade)						—	.07	.20***	.14***	.38***
7. Critical action—interpersonal (seventh grade)							—	.26***	.08	.03
8. Critical action—structural (seventh grade)								—	.11**	.26***
9. Discrimination experiences (seventh grade)									—	.25***
10. Critical consciousness classroom climate (seventh grade)										—
11. Depressive symptoms (seventh grade)										
12. Depressive symptoms (eighth grade)										
13. Physiological stress (seventh grade)										
14. Physiological stress (eighth grade)										
15. Life satisfaction (seventh grade)										
16. Life satisfaction (eighth grade)										
17. Behavioral school engagement (seventh grade)										
18. Behavioral school engagement (eighth grade)										
19. Emotional school engagement (seventh grade)										
20. Emotional school engagement (eighth grade)										
21. Reactions to academic challenges (seventh grade)										
22. Reactions to academic challenges (eighth grade)										
23. Disruptive school behavior (seventh grade)										
24. Disruptive school behavior (eighth grade)										
M (SD)	0.50 (0.50)	0.00 (1.00)	0.67 (0.47)	0.24 (0.43)	0.44 (0.50)	2.31 (1.00)	3.12 (1.33)	2.46 (0.96)	1.28 (0.64)	2.00 (0.86)

Note: N=663 adolescents.

*p<.05; **p<.01; ***p<.001.

(B=0.11, SE=.05, p=.02; for details, see Supporting Information I).

As SES constitutes an additional central dimension of stigmatization besides ethnic or racial group membership or heritage culture, we ran additional analyses exploring whether SES moderated the relationship between CC latent profile membership and adaptation. However, we did not find any significant moderation effects.

11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.
.17***	.20***	.09*	.19***	−.02	−.02	.11**	.11*	.10**	.09	.04	.09	−.07	−.04
.08	.12*	.05	.05	.00	−.02	.05	−.05	.02	−.05	.08	.00	−.09*	−.02
.05	.01	.03	.00	−.05	−.02	−.03	−.03	−.02	−.03	.00	.06	.09*	−.13**
.12**	.14**	.06	.09	−.09*	−.08	−.03	−.04	−.01	−.03	−.01	.00	.04	−.04
−.12**	−.11*	−.07	−.06	.10*	.09	.01	.06	.01	.02	.00	.02	.07	.06
.26***	.20***	.15***	.15**	−.06	−.09	.06	.05	.03	.03	.03	.02	.01	.05
.09*	.06	.06	.02	.12**	.09	.19***	.11*	.21***	.06	.20***	.12*	−.11**	−.11*
.05	.08	−.01	.02	.14***	.10*	.23***	.25***	.29***	.26***	.22***	.25***	−.08*	−.10*
.26***	.10	.21***	.02	−.15***	−.14**	−.05	−.00	−.01	.02	−.07	.05	.02	.02
.14***	.10*	.09*	.05	.04	−.01	.08*	.08	.13**	.10*	.06	.04	.00	−.05
—	.58***	.70***	.48***	−.51***	−.41***	−.14***	−.13**	−.19***	−.19***	−.13***	−.10*	.08*	.04
	—	.48***	.75***	−.41***	−.53***	−.14**	−.10	−.17***	−.14**	−.09	−.07	.04	.13**
		—	.57***	−.38***	−.31***	−.22***	−.20***	−.25***	−.25***	−.21***	−.18***	.21***	.13**
			—	−.35***	−.40***	−.22***	−.18***	−.24***	−.21***	−.18***	−.15**	.18***	.26***
				—	.64***	.38***	.33***	.44***	.36***	.32***	.28***	−.15***	−.16**
					—	.21***	.29***	.31***	.33***	.24***	.31***	−.07	−.13**
						—	.56***	.71***	.42***	.70***	.44***	−.51***	−.42***
							—	.48***	.69***	.51***	.70***	−.36***	−.49***
								—	.55***	.60***	.44***	−.36***	−.33***
									—	.41***	.60***	−.20***	−.30***
										—	.57***	−.46***	−.41***
											—	−.34***	−.43***
												—	.53***
													—
2.32 (0.98)	2.46 (1.03)	2.20 (0.85)	2.26 (0.88)	3.55 (0.99)	3.49 (0.97)	3.51 (0.82)	3.49 (0.80)	3.20 (0.85)	3.19 (0.83)	2.83 (0.65)	2.82 (0.63)	2.24 (0.80)	2.27 (0.77)

DISCUSSION

CC has been argued to be an important developmental asset for adolescents growing up in inequitable societies. Whereas most previous research on antecedents and consequences of CC adopted a variable-centered perspective, we took a person-centered perspective to (1) identify groups of adolescents displaying different CC profiles, (2)

TABLE 2 Fit statistics of latent profile analyses.

No. of latent profiles	LL	N_{par}	BIC	SABIC	BLRT	LMR-LRT	Entropy	*n*1	*n*2	*n*3	*n*4	*n*5
1	−2736.39	6	5484.78	5492.35	—	—	—	625				
2	−2675.88	10	5416.15	5384.40	.00	.00	.72	396	229			
3	−2626.94	14	5344.00	5299.56	.00	.00	.81	229	227	169		
4	−2605.38	18	5326.64	5269.49	.00	.00	.82	177	156	153	139	
5	−2593.54	22	5328.71	5258.87	.00	.00	.83	175	159	153	124	14

Abbreviations: BIC, Bayesian information criterion; BLRT, *p*-value of the bootstrapped likelihood ratio test; LL, loglikelihood; LMR-LRT, *p*-value of the adjusted Lo–Mendell–Rubin likelihood ratio test; N_{par}, number of parameters; SABIC, sample size adjusted BIC.

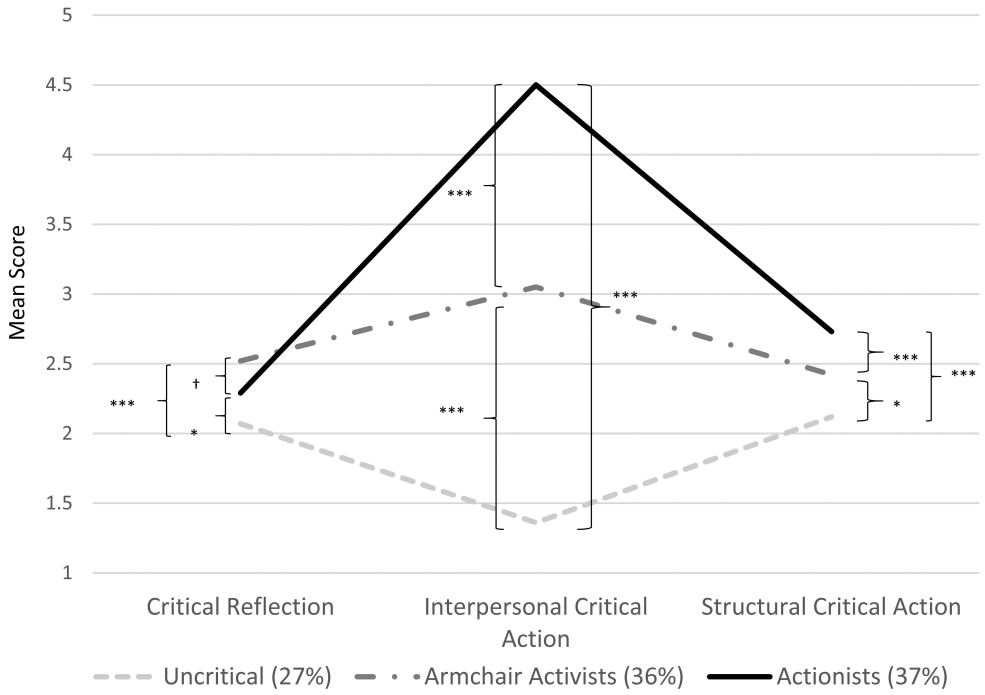

FIGURE 2 Final three-profile solution of critical consciousness latent profile analyses. A MANOVA ($F(6, 1170) = 168.69$, $p < .001$) indicated that the three profiles differed significantly on the three profile indicators. Significant post-hoc tests are indicated by $^{\dagger}p < .10$, $^{*}p < .05$, $^{***}p < .001$.

investigate whether discrimination experiences, membership in a stigmatized group, and the CC classroom climate predict profile membership, and (3) examine how profile membership predicts adolescents' socioemotional and academic adaptation over time. We examined CC in an understudied context (Germany) and included adolescents assumed to experience different degrees of marginalization and privilege based on their heritage culture and religion. Our findings support literature showing that adolescents display different profiles of CC, with differential implications for their adaptation (Godfrey et al., 2019). In particular, the findings highlight the importance of fostering critical action among adolescents to avoid raising reflective but disheartened adolescents.

Adolescents' CC latent profiles

Supporting Hypothesis 1, a three-profile solution was the best model. The actionists showed high intentions for interpersonal and structural critical action, but only average critical reflection. The armchair activists displayed the highest critical reflection out of the three profiles, but only average intentions for interpersonal and critical action compared with the other two profiles. Adolescents in the uncritical profile showed the lowest levels of critical reflection and action out of all groups.

The results reflect Godfrey et al. (2019), who identified four CC profiles marked by different levels of critical reflection, political efficacy, and critical action. However, in Godfrey et al. (2019), the four profiles all showed similar intentions for critical action, whereas the profiles in the present study were mainly distinguished by intentions for interpersonal critical action. The critical action measure included in Godfrey et al. (2019) assessed the importance adolescents place on future action on behalf of the community, which may target a more communal-level form (Aldana et al., 2019; Taylor, 2020). Particularly for younger adolescents, interpersonal critical action may constitute a more salient and developmentally appropriate form of

TABLE 3 Results of multinomial logistic regression analyses.

	Armchair activists		Actionists	
Reference profile	***B* (SE)**	**Odds ratios [95% CI]**	***B* (SE)**	**Odds ratios [95% CI]**
Uncritical				
Intercept	0.94 (.27)		0.44 (.30)	
Control variables				
Gender (0=male, 1=female)	−0.14 (.19)	0.87 [0.59; 1.27]	0.65** (.20)	1.91 [1.28; 2.84]
SES	−0.09 (.14)	0.92 [0.70; 1.20]	0.13 (.15)	1.14 [0.85; 1.53]
Intervention (vs. control) condition	−0.21 (.25)	0.81 [0.50; 1.32]	−0.35 (.20)	0.71 [0.48; 1.05]
Predictors				
Medium (vs. lower) stigmatization	−0.10 (.29)	0.91 [0.52; 1.59]	−0.15 (.26)	0.86 [0.52; 1.43]
Higher (vs. lower) stigmatization	−0.88** (.27)	0.42 [0.25; 0.70]	−0.37 (.31)	0.69 [0.38; 1.28]
Discrimination experiences	0.63* (.26)	1.89 [1.13; 3.15]	0.60* (.25)	1.82 [1.12; 2.95]
Individually perceived CC classroom climate	0.23 (.15)	1.26 [0.93; 1.71]	0.00 (.14)	1.00 [0.77; 1.30]
Actionist				
Intercept	0.50 (.21)			
Control variables				
Gender (0=male, 1=female)	−0.79*** (.22)	0.45 [0.30; 0.69]		
SES	−0.22 (.11)	0.80 [0.65; 1.00]		
Intervention (vs. control) condition	0.14 (.19)	1.15 [0.79; 1.66]		
Predictors				
Medium (vs. lower) stigmatization	0.05 (.25)	1.05 [0.64; 1.72]		
Higher (vs. lower) stigmatization	−0.51* (.25)	0.60 [0.37; 0.97]		
Discrimination experiences	0.04 (.13)	1.04 [0.80; 1.34]		
Individually perceived CC classroom climate	0.24 (.15)	1.27 [0.95; 1.69]		

Abbreviations: CC, critical consciousness; SES, socioeconomic status.
*$p<.05$; **$p<.01$; ***$p<.001$.

critical action as opportunities to engage in communal-level or structural forms of critical action are limited. Future research should try to identify additional developmentally appropriate forms of critical action among different age groups. For example, recent work on peacebuilding suggests that children engage in different prosocial behaviors targeting either other individuals (e.g., helping intentions), the outgroup as a whole (e.g., collective action), or the broader collective good (e.g., activism; Taylor, 2020). Similarly, work on anti-racism action has distinguished anti-racism actions at interpersonal (e.g., challenging someone who makes a racist joke), communal (e.g., joining a club working on issues such as discrimination), and political change (e.g., joining a protest) levels (Aldana et al., 2019). Future research should examine which types of actions are salient for adolescents at different developmental levels and include these as indicators in latent profile (and other) analyses.

The finding that overall, critical reflection (M=2.31, SD=1.00) as well as intentions for structural critical action (M=2.46, SD=0.96) were quite low in our sample may also be explained by developmental considerations. Similarly low mean levels of racial critical reflection (M=2.47, SD=1.08) among seventh-grade adolescents were reported by Godfrey et al. (2019). The even lower mean level in our sample may reflect the lack of public discussions (until recently) about inequities based on culture, ethnicity, or religion in Germany. In 2018, activist Ali Can introduced the hashtag #MeTwo to expose daily discrimination faced by cultural, ethnic, or religious minorities in Germany. In 2020, a mass shooting of people of immigrant descent in Hanau, Germany, along with the killing of unarmed Black individuals by police in the United States inspired nationwide protests against racism and discrimination all around Germany (Tagesschau, 2020). Therefore, German adolescents today may show higher critical reflection than adolescents a few years ago when these data were collected—an open question to be pursued. Overall, our findings highlight the importance of considering person-centered perspectives as well as developmentally appropriate conceptualizations of action in CC research.

Discrimination experiences and classroom climate as predictors of latent profile membership

Supporting Hypothesis 2a, discrimination experiences were associated with profile membership. Specifically, those experiencing more discrimination were more likely

TABLE 4 Regression analysis regressing socioemotional and academic adaptation on latent profile membership (controlling for adaptation at the previous time point).

	Socioemotional adaptation			Academic adaptation			
	Stress	Depressive symptoms	Life satisfaction	Behavioral school engagement	Emotional school engagement	Reactions to academic challenges	Disruptive school behavior
	B (SE)	*B* (SE)	*B* (SE)	*B* (SE)	*B* (SE)	*B* (SE)	*B* (SE)
Intercept	1.18*** (.13)	1.24*** (.15)	1.63*** (.16)	1.80*** (.15)	1.87*** (.15)	1.57*** (.12)	1.46*** (.13)
Control variables							
Gender (0 = male, 1 = female)	0.24** (.07)	0.26** (.08)	−0.04 (.07)	0.13* (.07)	0.09 (.07)	0.10* (.05)	−0.04 (.06)
Socioeconomic status	0.00 (.04)	0.10 (.05)	−0.02 (.05)	−0.03 (.04)	−0.03 (.04)	0.00 (.03)	0.04 (.04)
Intervention (vs. control) condition	0.00 (.07)	0.00 (.09)	−0.03 (.08)	−0.05 (.07)	0.06 (.07)	0.08 (.05)	−0.24*** (.07)
Medium (vs. lower) stigmatization	0.05 (.09)	0.10 (.11)	−0.05 (.10)	−0.05 (.09)	−0.10 (.09)	0.01 (.07)	−0.03 (.08)
Higher (vs. lower) stigmatization	−0.05 (.09)	0.01 (.11)	0.07 (.10)	0.09 (.09)	−0.03 (.09)	−0.01 (.07)	0.05 (.08)
Respective adaptation outcome at previous time point	0.47*** (.04)	0.47*** (.04)	0.52*** (.03)	0.44*** (.03)	0.42*** (.04)	0.40*** (.03)	0.46*** (.04)
Predictors							
Armchair activist profile (vs. uncritical)	−0.09 (.09)	−0.03 (.11)	−0.09 (.10)	0.08 (.09)	−0.18* (.09)	−0.11 (.08)	−0.01 (.08)
Actionist profile (vs. uncritical)	−0.07 (.09)	0.01 (.10)	0.13 (.09)	0.07 (.08)	−0.03 (.09)	0.04 (.06)	−0.06 (.08)
Armchair activist profile (vs. actionist)[a]	*−0.02 (.08)*	*−0.03 (.10)*	*−0.21* (.09)*	*0.01 (.08)*	*−0.15 (.08)*	*−0.15 (.07)*	*0.05 (.08)*
Interaction							
Armchair activist (vs. uncritical) × higher stigmatization						0.20* (.09)	
Armchair activist (vs. actionist) × higher stigmatization[a]						*0.19* (.09)*	
R^2	.27***	.28***	.35***	.26***	.23***	.23***	.26***

Note: Model fit: $\chi^2/df = 2.96$***, comparative fit index = .98, root mean square error of approximation = .05 [90% CI .04; .07], standardized root mean square residual = .06. Control variables and predictors were assessed at the end of seventh grade, socioemotional and academic adaptation at the end of eighth grade. We also controlled for the respective adaptation outcome at the previous time point (e.g., when predicting physiological stress at the end of eighth grade, controlling for physiological stress at the end of seventh grade).

[a]The coefficients in italics stem from an additional analysis including different dummy variables that enabled comparing armchair activists to actionists. In this model, all other coefficients are (almost) the same, except for the intercepts: stress: 1.10*** (.12), depressive symptoms: 1.25*** (.14), life satisfaction: 1.76*** (.16), behavioral school engagement: 1.87*** (.15), emotional school engagement: 1.84*** (.15), reactions to academic challenges: 1.58*** (.12), disruptive school behavior: 1.40*** (.12). For full results table of this additional analysis, see Supporting Information H.

*$p < .05$; **$p < .01$; ***$p < .001$.

to be in the armchair activist or actionist profiles than in the uncritical profile. Thus, adolescents who had experienced discrimination were more likely to be in a profile marked by medium or high awareness that people from certain heritage cultures in Germany experience disadvantages, coupled with medium or high intentions to engage in action addressing these disadvantages, compared with a profile marked by low reflection and action. The findings are in line with Tyler et al. (2020) and Hope et al. (2019) who found positive associations between discrimination experiences and adolescents' critical reflection and action. Personal experiences with racial or ethnic discrimination can encourage broader reflections on societal-level inequities (Anyiwo et al., 2018). However, since discrimination experiences were related to membership in the armchair activist and actionist profile alike, they may not always prompt adolescents to be reflective *and* highly active. This is an important distinction. For discrimination experiences to result in critically reflective and highly active adolescents, several additional conditions may be relevant, such as the availability of opportunity structures (Watts

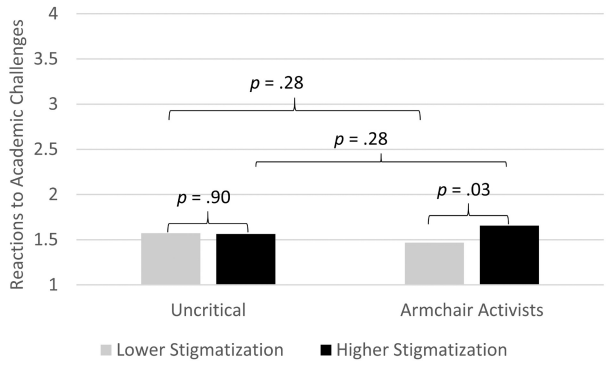

FIGURE 3 Interaction between membership in armchair activist profile (vs. uncritical) and higher stigmatization on reactions to academic challenges (controlling for adaptation at previous time point).

& Flanagan, 2007) and social support (Tyler et al., 2020), as well as a feeling of safety to engage in action.

In contrast, Hypothesis 2b was not supported. CC classroom climate was unrelated to adolescents' CC latent profile membership, diverging from previous research (Bañales et al., 2019; Schwarzenthal et al., 2022). Our sample was younger (M_{age} = 12.91) than those in previous CC classroom climate studies (e.g., Bañales et al., 2019: M_{age} = 17.00; Schwarzenthal et al., 2022: M_{age} = 14.63). Potentially, discussing structural social inequity in the classroom is less prevalent in younger adolescents' classrooms. Along these lines, the mean levels of the CC classroom climate were lower in our study ($M_{CC\ climate}$ = 2.00) compared to previous studies (e.g., Bañales et al., 2019: $M_{CC\ climate}$ = 3.09; Schwarzenthal et al., 2022: $M_{CC\ climate}$ = 2.66/2.62, among non-Muslim vs. Muslim adolescents, respectively).

However, our additional exploratory analyses showed that the CC classroom climate partially moderated the relation between CC and adaptation, such that being an actionist was especially beneficial for adolescents' reactions to academic challenges in classrooms with a stronger CC climate. This is in line with person-environment fit or stage-environment fit approaches whereby classrooms that afford opportunities to satisfy adolescents' need for agency encourage positive adaptation (Eccles et al., 1996). Future research should delve deeper into the role that the CC classroom climate plays as a condition for CC as well as a moderator of the CC—adaptation relation throughout the course of adolescence.

CC latent profiles and adaptation

In line with Hypothesis 3a, adolescents in the actionist profile, marked by rather high critical reflection and action, showed more positive adaptation cross-sectionally and over time compared with adolescents in the other profiles. Specifically, adolescents who were in the actionist profile at the end of seventh grade showed higher life satisfaction 1 year later compared with those in the armchair activist profile. Moreover, they reported higher life satisfaction, higher behavioral and emotional school engagement, more positive reactions to academic challenges, and lower disruptive school behavior than the other profiles at the same time point. The findings are in line with previous research that found positive associations between aspects of adolescents' CC and their adaptation (Heberle et al., 2020; Maker Castro et al., 2022), with adolescents displaying high critical agency *and* behavior showing the most positive adaptation (McWhirter & McWhirter, 2016).

In our exploratory analyses, we found that adolescents in the armchair activist profile showed more negative adaptation cross-sectionally and over time compared with adolescents in the uncritical profile. Specifically, adolescents in the armchair activist profile showed decreased emotional school engagement over the course of 1 year, controlling for their prior levels of emotional engagement. Moreover, membership in the armchair activist profile was associated with lower life satisfaction and lower behavioral and emotional school engagement than the other two profiles at the same time point. These results paint a similar picture as Godfrey et al.'s (2019) findings, where adolescents showing high critical reflection and low political efficacy displayed negative adaptation. Thus, high critical reflection combined with low feelings of efficacy or low critical action seems to result in disheartened adolescents who eventually show worse socioemotional and academic adaptation. It stands to reason that young people who critically perceive inequity yet fail to feel able to do anything about it may suffer deleterious consequences.

Where most research has only examined cross-sectional relations, we demonstrated CC is related to some positive adaptation outcomes longitudinally. However, we found fewer longitudinal than cross-sectional effects. This may be a methodological artifact—effects over time may dissipate while cross-sectional effects are much less likely to. A second methodological explanation is our use of lagged measures. While strengthening the robustness of inferences made, differencing out the prior wave's value reduces variation and makes detecting significant effects more difficult. Substantively, it may be that CC does have positive implications for developmental outcomes, but perhaps at different phases of the life course. For example, associations between CC and adaptation may be stronger during middle or late adolescence (vs. early adolescence as studied here), which is marked by further development of adolescents' ethnic identity and increasing awareness of their position in the wider society (Mathews et al., 2019).

Our results underline proposals to recenter action in CC research, in line with Freire's original ideas that critical reflection serves informed action (Diemer et al., 2021; Watts & Hipolito-Delgado, 2015). Engaging in critical action may make adolescents feel more agentic about their

ability to change societal conditions, which may also promote agency in other domains (Diemer et al., 2021; Freire, 1970). Particularly during adolescence, a period marked by an increasing need for autonomy, engaging in critical action may satisfy this developmental need (Eccles et al., 1996).

We found little evidence for Hypothesis 3b that positive associations between CC latent profiles and adaptation would be stronger among adolescents belonging to more stigmatized groups. Indeed, most of the associations between CC latent profile membership and adaptation did not differ between adolescents belonging to groups assumed to experience higher, medium, or lower stigmatization. Only in one case, membership in the armchair activist profile (vs. the uncritical profile) was more positively related to persistence to academic challenges for adolescents assumed to experience higher rather than lower stigmatization. Perhaps, among highly stigmatized adolescents who are often faced with disadvantage and are in danger of internalizing self-doubts, perceiving inequity, even if it is not coupled with strong action, may be protective, compared to not perceiving inequity at all as it may prevent them from locating deficits inwards. At the same time, however, our exploratory analyses revealed that adolescents assumed to experience higher stigmatization were more likely to be in the actionist profile or in the uncritical profile than in the armchair activist profile. As adolescents assumed to experience higher stigmatization are more likely to have a low SES, they may have fewer opportunities to follow the news or engage in political discussions with adults, which may be why they are more likely to be in an uncritical rather than an armchair activist profile. However, if adolescents experiencing higher stigmatization become aware of social inequities, they tend to also take action. Potentially, being personally disadvantaged by current societal structures encourages taking action, whereas more privileged adolescents who benefit from the existing system may perceive less urgency to engage in action to change it.

Overall, our findings underscore that CC may indeed be a developmental asset (Heberle et al., 2020; Maker Castro et al., 2022), but provide important nuance, highlighting that critical reflection without action may also constitute some developmental risk. Moreover, it is encouraging that being an actionist is not only positive for the adaptation of marginalized adolescents but also of more privileged adolescents. These findings support recent calls to also study CC among more privileged populations, since fighting oppression should not only rest on the shoulders of the oppressed (Diemer et al., 2016, 2021).

Limitations and future directions

Our data set did not include a measure of political efficacy. As political efficacy is sometimes conceptualized as one component of CC (Heberle et al., 2020) and may be crucial for critical reflection to translate into critical action (Watts et al., 2011; but see Diemer & Rapa, 2016), future research should include measures of political efficacy when identifying CC profiles.

As adolescents face barriers to engage in critical action, we assessed their *intentions* to engage in critical action instead of their past actions, in line with other research on adolescents' CC (Heberle et al., 2020). Future research should investigate whether the adolescents' critical action intentions predict their actual critical action across development. Similarly, future research could explore how these processes interrelate among young adults, who are over age 18 and therefore have more opportunities to engage in critical action.

We distinguished three groups of adolescents that we assumed to experience differing levels of stigmatization in society based on previous research assessing discrimination and disadvantage experienced by different cultural, ethnic, and religious groups in Germany (Aikins et al., 2021; SVR-Forschungsbereich, 2018). Even though the groups also differed in SES as expected, we did not directly assess the degree of societal stigmatization. Future research should explore alternative ways to capture degrees of societal stigmatization in Germany and other contexts (Juang et al., 2021; Vietze et al., 2022).

As adolescents in the actionist profile showed the most positive adaptation, future research is needed to identify predictors of membership in an actionist profile. Besides discrimination experiences, which were a significant predictor in our study, opportunity structures (Watts & Flanagan, 2007), such as opportunities to join social action, youth organizing, or racial or ethnic organizations, and social support to engage in action (Tyler et al., 2020), for example, through parent, school, or peer socialization (Heberle et al., 2020), may be important antecedents of membership in an actionist profile.

Moreover, future research should explore why CC is associated positively with the adaptation of adolescents experiencing relatively more privilege. Whereas among marginalized groups, CC has been assumed to foster positive adaptation because it prevents adolescents from locating deficits inwards and instead encourages them to challenge oppressive systems (Heberle et al., 2020), the process through which CC is related to positive adaptation among more privileged adolescents is unclear. Potentially, CC, and in particular critical action, may also serve more privileged adolescents' need for autonomy, and the fulfillment of this need may encourage positive adaptation (Eccles et al., 1996). Alternatively, feeling solidarity with more marginalized people and taking action to change inequitable social structures may align with adolescents' values of fairness.

Moreover, future research should more explicitly take an intersectional perspective to study adolescents' CC profiles. For example, research could examine how adolescents perceive multiple interlocking systems of oppression such as racism, classism, and sexism as

well as engage in actions to oppose these (Godfrey & Burson, 2018) or how these perceptions and actions vary depending on adolescents' experiences of marginalization based on their multiple social identities (e.g., gender, ethnicity, social class). For example, in our study, girls were more likely to be in the actionist profile. Potentially, experiencing stigmatization with regard to one social identity (e.g., gender) may also encourage critical reflection and action with regard to other axes of social inequity. On the other hand, greater reflection and action regarding one axis of inequality does not always translate into greater reflection and action regarding other axes of inequality (Godfrey & Burson, 2018), underscoring the need for future research in this area.

Conclusion and implications

Our findings show that adolescents display different profiles of CC that have important implications for their socioemotional and academic adaptation. In particular, adolescents displaying moderate critical reflection and high intentions for critical action showed the most positive adaptation. These results highlight the potential of person-centered approaches to shed more light on the complex relations between adolescents' CC and their adaptation. They also show that the positive developmental implications of CC that have been identified mainly among adolescents in the US also transfer to adolescents in Germany. Moreover, we could show that CC is not only a developmental asset for adolescents experiencing marginalization but also for those experiencing privilege. Our results suggest that intervention efforts should also promote adolescents' critical action, for example, by teaching them about past resistance efforts, encouraging them to write letters to elected officials, or forming adult–adolescent partnerships in which adults support adolescents' social change efforts (Diemer et al., 2021; Watts & Hipolito-Delgado, 2015). If these initiatives can promote adolescents' critical action along with critical reflection, they may eventually contribute to adolescents' positive socioemotional and academic adaptation as well as to increased efforts to strive for more equitable societies.

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DATA AVAILABILITY STATEMENT

Open science declaration: Analyses were preregistered. The preregistration, materials, and analytic code necessary to reproduce the findings are publicly accessible at the following URL: https://osf.https://osf.io/xak5p/?view_only=9265207002d34384bec6d6a56f405168. The data necessary to reproduce the analyses presented here are not publicly accessible.

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