

## Interpretive repertoires as mirrors on society and as tools for action: reflections on Zeyer and Roth's *A mirror of society*

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**Abstract** I respond to Zeyer and Roth's (Cultural Studies of Science Education, 2009) paper on their use of interpretive repertoire analysis to explicate Swiss middle school students' dialogic responses to environmental issues. I focus on the strategy of interpretive repertoire analysis, making sense of the stance Zeyer and Roth take with this analysis by synthesizing their argument and comparing their analysis with other researchers that have also used this analytic tool. Interpretive repertoires are discourse resources, including mores, tropes, and metaphors that can be evoked by speakers in support of a tenuous claim. So interpretive repertoires have rhetorical character and function. Interpretive repertoire analysis requires looking for patterns in the contradictions in the speech of a collective of participants that can be codified as interpretive repertoires. Interpretive repertoires provide insight into macro-structures that frame, and are used to justify participants' behavior. My response to Zeyer and Roth's argument might also be thought to be contradictory but I think defensible. In this paper, I outline why I am excited by the possibilities I can image for this type of analysis in areas of science education research. However, I also felt the need to identify possible limitations of Zeyer and Roth's exclusive focus on environmental issues to the neglect of other issues, such as those associated with gender, embedded in participants' discourse. I argue that a critical and historical focus, in conjunction with interpretive repertoire analysis, offer a rich strategy for analysis in science education research, especially in the study of macrostructures, such as gender, race, identity and power.

**Keywords** Interpretive repertoires · Discourse analysis · Critical theory · Science education

In their paper, Zeyer and Roth (2009) apply an analytic strategy called *interpretive repertoire analysis*, a form of discourse analysis, to study Swiss middle school youth and their role in environmental action. Zeyer and Roth search for interpretive repertoires in the

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discourse of youth asked about environmental issues. They describe interpretive repertoires as discourse resources available to speakers for supporting a tenuous claim so the repertoires have a rhetorical character.

### Understanding interpretive repertoires

According to Jonathan Potter et al. (1990) interpretive repertoires are constituted by the ways people evoke different moves, tropes, and metaphors in keeping with how they consider such moves, tropes, and metaphors suitable to the extant context. These repertoires are taken as “unassailable statements” or facts within a discourse context that construct versions of actions, cognitive processes, and other phenomena (Wetherell and Potter 1988). Interpretive repertoires also constitute community talk derived from key metaphors that can be identified by certain figures of speech.

The basis of Zeyer and Roth’s (2009) analysis is the discourse that connects social and personal fields and, more specifically for their study, middle school students’ responses to conversations and interviews about environmental action. Using *discourse analysis*, they examine the discourses of individual students to identify the contradictions in her/his talk. With a collection of accounts they then look to identify patterns in the variability of students’ talk and focus on how and what students say as representative of cultural patterns more generally. These patterns can be codified as interpretive repertoires, which constitute evidence for basic assumptions that support a way of talking about a specific phenomenon and a particular rhetorical stance. Roth has used this form of analysis in a number of studies that examined people’s use of specific interpretive repertoires in a variety of contexts including curriculum development in environmental education (Reis and Roth 2007) and high school physics students (Roth and Lucas 1997). Zeyer and Roth build on Wetherell and Potter’s (1988) research on discourse analysis of the social construction of “race” in New Zealand and Gilbert and Mulkay’s (1984) study of scientists’ talk about research.

According to Wetherell and Potter (1988), the function of discourse analysis is to use dialogic interaction to identify structural components of ideology and power legitimation. However, sometimes the function of discourse can be hard to identify so scholars using interpretive repertoire analysis seek variation, often not intentional, in talk that can be indicative of specific interpretive repertoires. Wetherell and Potter reason that discourse is used constructively, one could say argumentatively in the case of interpretive repertoires, to achieve particular outcomes or consequences. Thus discourse is manufactured from pre-existing linguistic resources with specific properties from which participants actively select in order to achieve practical outcomes. The regularity that exists in discourse cannot be ascribed to one person but to the variation in language units, the cultural artifacts, which constitute interpretive repertoires. Importantly, this form of analysis acknowledges the situated, constructed, and purposeful nature of language. Language is never assumed to be transparent and discourse is not thought to be seamlessly representative of measurable reality and be “a simple description of mental state or event” (Wetherell and Potter 1988, p. 168).

Critics from the fields of conversation analysis and ethnomethodology argue that in their search for interpretive repertoires researchers are not taking as the focus of their analysis the meaning that participants ascribe to their talk. However, Zeyer and Roth (2009) claim that the search for interpretive repertoires allows them to understand how Swiss middle school students articulate their world and the values and beliefs they hold about the

environment. Additionally, they acknowledge that students involved in class discussions and interviews assume also that Zeyer, their interviewer, uses similar repertoires because of the unassailable, taken-as-given nature of interpretive repertoires from within Swiss/European cultures. The youth assume that Zeyer shares the values they espouse because they seem not to be able to imagine other values that could be applied to their context. Zeyer and Roth argue that by offering a rich source of cultural resources, social institutions aid actors, such as the students, to develop and present their account of an issue, from which interpretive repertoires are identified. Theories or statements about the nature of things are housed in institutions. These statements are buttressed by facts, which in Zeyer and Roth's study come from sources such as media and textbooks, providing the starting points for actors to talk about a topic.

For example, when talking about a topic of consumerism and the environment, one youth states: "It is for sure, that we destroy our world by our consumerism. With our driving of cars etc. But it is necessary" (Zeyer and Roth 2009). This comment provides a specific focus or direction for the discourse while also limiting other ways in which the topic can be constructed: while some people might criticize others for buying cars as an extravagance, the fact is that people need cars for their livelihood. So it would be unreasonable for others to expect us to give up our cars. This fact legitimates a specific version of reality, work is central to one's sense of self and cars are necessary to be able to do work positioning the speakers as they construct meaning as supportive of this reality. In the process of articulating this fact about cars and its associated reality, moral codes that have been internalized as right are actively sustained by the actors as they are involved in constructing a reality that is accepted and shared through discourse even though specific articulations vary. At the same time the youth's comment can serve to silence other positions on this issue. Such a perspective implies that in different contexts people will endorse different values and beliefs and identities, and that dialogic communication serves to concretize such meanings, values, and principles.

While dialogue can vary from context to context Bakhtin (1981), helps us to understand that the language we use comes from a community and therefore what is allowable is limited by what is accepted by the community. People do not typically create their own words especially when they are in a dialogical relationship with others. Instead, they use words that constitute existing and accepted language of discourse. In this context, interpretive repertoires concurrently serve two roles: they legitimate a specific version of reality while silencing other discourses that could be framed around a specific topic. Interpretive repertoires are emblematic of ongoing debates and conversations in communities and societies representing the ambivalence that is central to questions and issues involving value and meaning.

### Using interpretive repertoires to make sense of talk (further interpretations)

In their analysis of discourse for interpretive repertoires Zeyer and Roth (2009), were not interested in trying to identify students' mental models or in making a claim for uncovering reality—but in the patterns presented in the discourse and student interviews. The nature and structure of these discourses depend on the linguistic resources the students possess but, consistent with other studies of interpretive repertoires, students take a rhetorical stance. Zeyer and Roth identify two major repertoires, which they call *agential* and *commonsense*.

Agential repertoire is a discourse based on acceptance of the belief that things only happen because of human actions. Within the agential repertoire, Zeyer and Roth identify a sub-repertoire, which they call *pragmatist*. The pragmatist repertoire allows students and others to present a “caring face” to the environment while at the same time acknowledging the unreasonableness of such a perspective when people’s livelihood is at stake. In other words, what is real and true can only be applied as constructs within a specific context as humans and reality construct what is true acknowledging an external world that cannot be ignored. In interviews, youth take a rhetorical stance about how much they care about the environment while also noting that, if people’s livelihood is at stake, it will be unreasonable to put the environment first. Reading their description of pragmatic repertoire I was reminded of Wetherell and Potter’s (1988) *pragmatic realism* repertoire where people, when asked about multicultural social policies in New Zealand (as such policies related to the Maori people) could be regretful while at the same time constructing themselves as realistic and practical. For example, when asked to respond to the question of how they viewed calls for the learning of Maori language in New Zealand schools, people argued that while it was good to promote useful relevant knowledge, Maori language did not fit that definition. Such similarity in repertoires suggests not that interpretive repertoires can be generalized but that there is some similarity in available interpretive resources between the two contexts.

The other sub-repertoire Zeyer and Roth (2009) identify within the agential repertoire is the *control* repertoire. The control repertoire contrasts the agency of self with the agency of others placing the self in a position where she is unable to act in the way she would like because of a group position on these matters. This repertoire allows a person to be positive about the actions needed to support the environment or in a different context another issue, while at the same time using her relative weakness by comparison with the strength of the group, to dodge any need for individual action. For example, when asked about the ability of one person to make a difference one of the students comments that unlike a group, one person does not stand a chance.

When asked to interpret and classify experiences, youth draw on *commonsense interpretive repertoires* based on everyday theories that are supported by primacy they give to statements (facts) from everyday observations, popular media, and science courses, and which are taken to be transcendental truths. Within the commonsense repertoire, Zeyer and Roth (2009) also identify two sub-repertoires, *folk science* and *folk psychology*. Folk science separates *me* and *thing*; privileging observations from everyday experience, popular media, and science courses, as facts. These facts are truths that cannot be doubted or critiqued by others. An example of folk science repertoire comes from a whole-class conversation. Justin, one of the youths involved, claims, “*These situations, when the weather is so extreme, it shows you a bit, what one should have done. And one could do it yet, of course. [iii] That becomes clearer to you and you see it also frequently on TV.*” For Justin the extreme weather seen on television constitutes a commonsense fact that he presents as a truth about the environment indicative of global warming that is not open to question.

For Zeyer and Roth the folk psychology interpretive repertoire identifies the tension between *me* and *you* that students use to understand and predict the behavior of others with whom they interact. They present a segment of discourse from Nora, another youth involved in the study that Zeyer and Roth describe as articulating differences between men’s and women’s attitudes toward the environment:

[i] I tend to think that women get that better. [ii] Men always have different things in their heads. [iii] Men also like cars. [iv] They somehow are on a more playful way.

[v] We women want to have once a fixed home base, right. [vi] Children and so on, not every women, but most of them, and so one is bounded in one way. [vii] The housewife is also more at home, right. [viii] They can read the papers and are more confronted than a man, [ix] going to work every day at seven o'clock.

Zeyer and Roth comment:

It is interesting that that the naturalistic framework provided by this young woman shows many traditional cultural traits. The wife stays at home and cares for the household and the man goes to work “every day at seven o'clock” ([ix]). Things are “just like that.” This however does not mean that the wife is uninformed about environmental aspects. On the contrary, because she can read newspapers at home, “she is more confronted” ([viii]).

My stance on Zeyer and Roth's analysis of Nora's comments is also informed by Kenneth Gergen's (1994) discussion of the nature of critique. Gergen notes that often when one is making an argument about one field, such as the environmental issue that is the focus of Zeyer and Roth's study, other issues, such as those associated with race and gender, recede from consideration. He comments:

Of course, it is difficult to contend with all issues simultaneously. However, as interchange is polarized around a single continuum, there is a ferocious flattening of the world a silencing of other voices. (p. 61)

I felt that I could not move from this analysis without comment about the gender issue that I noted alongside the environmental issue that is the focus of Zeyer and Roth's analysis. I interpret Nora's comments slightly differently. She seems to be making a rhetorical claim that men are more playful than women and are also the breadwinners so it is all right for them to be less involved in environmental issues than women. It is in their nature for women to want to stay home (It would be unnatural for them to want to work, not stay at home and have children) and by staying home they have more time to worry about the environment. Such a rhetorical stance presents environmental issues in a less defensible position than Zeyer and Roth suggest because it becomes linked with repressive interpretive repertoires associated with gender. Nora's discourse links women with care about the environment and men with work, so it would seem from this repertoire that the environment will never be as important as work just as women have a place in society that makes their work less important than men's work. The reader is left to wonder if the student being interviewed is using gender as a resource to challenge or 'cement' the interpretive repertoire that Zeyer and Roth identified.

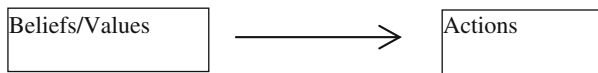
Blood's (2005) book on social construction of women's bodies suggests a strategy for infusing critique into an examination of interpretive repertoires. Blood is a clinical psychologist who through her work became interested in the social and cultural construction of body image. She began by examining and critiquing experimental research on body image by examining the historical development of this area of human thinking. Experimental research in this area was premised on the belief that the body, in this case women's bodies, was an object of perception that was separate from the mind. This research was based on developing instruments that allowed the evaluation of whether people “accurately” or “inaccurately” perceived their body. Blood argues that implicit to these studies was the notion that there was a norm for body image and therefore a “correct” way to perceive a body. Failure to do so was considered indicative of a pathology. Thus, women who did not meet the correct standards had a “body image problem.”

Early experimental studies tried to link eating disorders such as anorexia nervosa with perception of body size. Blood (2005) claims that Slade and Russell (1973) defined body image simplistically as a mental image each person has of her body. This definition isolated the body from all forms of interaction. Blood examines how popular magazines such as *Psychology Today* became involved in promoting surveys with their readers that were then analyzed with the results being published in the magazine. In this case, the popular media became a source of commonsense knowledge about body image just as the popular media became a source of commonsense knowledge about the environment for the students in Zeyer and Roth's study. She argues that such surveys are predicated on the reality of body image as something women have that can be measured. The issue of body image was extended to quasi-experimental studies of women that did not have eating disorders so that almost all women could be pathologized as having a perceptual defect. As Blood notes, apart from the separation of mind and body, research on body image is premised on acceptance of the idea that body image is stable, consistent, and real and to be normal is to be constant, consistent, and rational. Any observed inconsistencies or contradictions associated with body image are indicative of pathology.

Blood noted how women's magazines became involved in body image discourse; presenting women's bodies as flawed and in need of improvement while concurrently positioning the magazine as supportive of women. The body image discourse presents women as subjects and a feminist perspective requires women to look behind everyday practices, experimental evidence, and mundane texts, to work with text and push beyond it. She identified three major interpretive repertoires (note the metaphors): "(1) *women's bodies as sexual objects of male desire*; (2) *women as unnecessarily concerned about their physical appearance*; and (3) *body work as essential to achieving and maintaining an attractive body* (p. 99)" Blood argues that the upshot of these interpretive repertoires is that women are represented as irrational and inconsistent worried about their image when supposedly nobody cares. On one hand, the discourse is on women's self-improvement to look good, while at the same time women's concerns about image are dismissed as trivial. Talk about an identity problem! Blood argues that interpretive repertoire provides an analysis tool for examining how women's bodies have been socially produced and constituted through discourse. Both the research of Zeyer and Roth and that of Blood leads to the broader question of how humans make use of media and interpretive repertoires to construct identity assuming that interpretive repertoires can be used to inform our understandings of how our identities, both idiosyncratic and social, are constructed and revisited.

### **Evolving (or reciprocal??) models of action and beliefs: a place for interpretive repertoires**

Although in the previous section of this forum paper, I questioned how Zeyer and Roth (2009) analyzed Nora's discourse, overall their study encouraged me to explore further the possible use of interpretive repertoire analysis in science education research. What excited me most are the research possibilities I could imagine for interpretive repertoire analysis of dialogic interactions in science education. One area of research that immediately comes to mind is an issue I experienced when I began conducting research on the relationship between science teachers' personal philosophies of teaching and their teaching practice (Milne 1993). The study used a combination of interviews with each science teacher, in order to learn what they espoused as their philosophy of teaching, and classroom



**Fig. 1** Beliefs as the master controller of teacher actions model

observations of how these espoused beliefs affected their practice as science teachers. The model of analysis I used was based on acceptance of beliefs/values as the unidirectional master controller of action (see Fig. 1). Consistent with Blood's study, key to this idea is the acceptance that mind and body are separate and that our beliefs influence our actions.

Central to this deterministic model is the notion that researchers seek to identify the espoused beliefs of teachers and then use these identified beliefs to interpret observed teacher action. At that time, my expectations were that I would find evidence of teachers' espoused beliefs about the nature of science and learning manifested in their practice. I remember being faced with the challenge of explaining why a teacher's practice in the science classroom tended to be inconsistent with his espoused theories that he claimed informed his science teaching. I was in a quandary because my findings were at odds with the prevailing paradigm that beliefs control actions.

Almost 10 years later, sociologists Sewell (1999), Swidler (1986), and Bourdieu (1977), provided different models for my understanding of human actions within a socio-cultural context. Bourdieu examines our tendency to act in ways that are unconscious and therefore not amenable to self-description and self-fashioning which he calls *habitus*, defined as dispositions to act. Habitus represents habits of behavior, feelings, and thoughts. Bourdieu acknowledges (Bourdieu and Wacquant 1992) that constant subjection to experience, that is constant use of schema and access to resources, can modify or reinforce dispositions. Bourdieu and Swidler helped me to understand two issues that had been ignored in the previous model; the importance of context and the iterative relationship between actions and beliefs. Such a focus helped me to understand why people *act* the way they do rather than privileging people's talk ahead of their actions as I had in my previous study. Sewell (1992) presented an even more nuanced explanation for people's actions. According to Sewell, a person's ability to act, her agency, and cultural structures exist in a dialectical relationship that can constrain and promote possibilities for action. Typically, practical action and a shared semiotic field lead people to use symbols in culturally appropriate ways. However, the cultures with which a person is associated are thinly coherent so meanings are contested and symbols can be evoked in new ways. Tobin (2009) reminds us that even though patterns of coherence can emerge in fields of cultural production as part of social life in a specific field, contradictions always exist alongside coherences. This perspective accounts for contradictions I had observed between participants that belonged to a specific cultural field and helps me to understand why participants do not need to behave in consistent and predictable ways. It is not unusual for people to present different values and meanings when they experience different contexts. However, even with this understanding my expectation was that an individual's discourse and behavior would be consistent and coherent across time and space, so my tendency was to focus on consistent patterns in discourse in a spatial-temporal field of professional educational action (e.g., Milne et al. 2006). However, interpretive repertoire analysis provides an analytic tool for understanding the role of context in people's discourse where contradictions and a lack of coherence can be a feature of their conversation.

Edwards (2005) argues that strategies, such as interpretive repertoire analysis, allow researchers to see patterns in what previously had been considered by researchers to be

data noise. He claims that traditional interviews were used to access information about how participants think and respond to specific topics. The inconsistent, variable accounts that have been treated as distracting noise as researchers seek to find the signal, that is, the consistent values and facts held by the participant, suddenly become more important as researchers are able to use analytical strategies like interpretive repertoires to see patterns in the noise. Talja, a Finnish researcher who uses discourse analysis, notes that usually when interviews are being conducted there is a tendency to employ strategies of restriction such as categorization, coding, and selective reading to ameliorate inconsistencies because researchers are “accustomed to regarding the individual as a coherent, consistent unit” (1999, p. 464). I am reminded of research literature in science education, such as “conceptual change research,” that makes extensive use of interview and survey data and wonder if researchers might develop a different awareness of students’ understandings if they were to use interpretive repertoire analysis to their research tool kit. Conceptual change is based on our understanding that there is a permanent and coherent set of understandings associated with a concept and that different students have different experiences and beliefs about this concept. However, Talja reminds us that interview talk is interpretive work that is reflexive, theoretical, contextual, and textual because the objects of talk are not ideal, abstract objects that everyone uses the same way, even though science education is often premised on attempts to do just that. In interviews about a concept, I wonder if students produce talk that includes both a version of the concept and an evaluation or ideology about their learning of that concept?

Interpretive repertoire analysis can assist researchers to understand the meanings and values that are important to cultures and communities and, as such, interpretive repertoires can function as a mirror to that society. But interpretive repertoires are more than that because they also function as structuring metaphors or resources for action. Blood’s study (2005) illustrates that an examination of the history of a construct can support a deeper understanding of the cultural history of issues and their associated repertoires that can expand humans’ options for action. Zeyer and Roth’s study (2009) illustrates the value of seeking to identify and understand interpretive repertoires as a step in this process.

### **Places for interpretive repertoire analysis**

My reading of Zeyer and Roth (2009) suggest several research areas within science education that could benefit greatly from interpretive repertoire analysis. For example, there could be questions about how interpretive repertoires could support a richer analysis of narratives of identity that people use to describe their experiences in fields such as becoming or being a science teacher. Interpretive repertoires analysis could also be applied to examination of how girls and boys represent their experience of learning science in specific contexts. We could ask what interpretive repertoires youth use when interacting with science-technology-and society issues in the classroom and what that might tell us about the macro-structures they evoke to address these issues. An examination of this issue might help us to understand more about the rhetorical stances youth take when addressing such issues. We could also think about using interpretive repertoires to better understand how youth represent their knowledge and how they know what they know when they are asked about science concepts, theories, or ideas and the importance they assign to such understanding. This might provide a richer assessment of the intersection between popular culture and the discourses of science, such as those identified by Gilbert and Mulkey (1984). I can also imagine a role for interpretive repertoires analysis in the research of



understanding the decisions teachers make about science curriculum and learning in different contexts. Finally, perhaps interpretive repertoires could help us to understand the decision making processes of science teachers working with students identified as belonging to a separate group such as special education or gifted and talented.

Interpretive repertoires analysis as presented by Zeyer and Roth (2009) introduces me to an analytical strategy that allows for contradictions within communities and individuals. Roth (2005) helps me to understand how “evaluative expressions” can be produced in discourse and Zeyer and Roth together use this understanding as a basis for the analysis they develop around students’ talk about humans and the environment. Interpretive repertoire analysis takes us from a focus on the contents of a conversation, which is typically the focus of study for fields such as conceptual change research, to a focus of how people express their positions. All forms of talk are examples of situated speech that can tell researchers about cultural interpretive practices (Talja 1999). Interpretive repertoire analysis takes place at the macro-level where power and identity can be identified from interactions. Repertoires are emblematic of ongoing debates and conversations in communities and societies representing the ambivalence that is central to questions and issues involving value and meaning. As such, this form of analysis offers a different strategy for understanding the knowing, doing, and believing of all participants in science education. With its appreciation for the dialogic rather than the seemingly monologic I think interpretive repertoire analysis offers another tool for examining meaning and value for researchers in diverse areas of science education including conceptual change, science identity, and gendered practices.

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