Activity, Subjectification, and Personality: Science Education from a Diversity-of-Life Perspective

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In this chapter, I develop a perspective on science education that contextualizes it within the totality of learners' lives consistent with the idea that I proposed to take the fullness of life as the minimal unit of analysis (Roth and van Eijck 2010). The episode that today epitomizes for me my interest in this approach is related to a student, Tom, who attended two physics courses that I taught in 1990–1992. But it was only in 2008 – while writing a book on a Bakhtinian perspective on learning in which I used transcripts from those courses (Roth 2009) – that I came to develop a better understanding of the phenomenon that I present here. It was especially while working on the project that would provide the kinds of stories that I present in the second part of this chapter that it became obvious that a theoretical approach different from the going emphasis on "science identity" was required. In my view, science *identity* focuses too much on the individual and very little on the cultural-historical aspects of who we can be in and through participating in society.

As a high school teacher, I had been interested not only in students' learning of physics but also in allowing them to develop better understandings of epistemology, the nature of science, and the nature of their own learning. The philosophical texts that I asked my students to read were produced by authors such as Gregory Bateson (an anthropologist and philosopher), David Suzuki (a Canadian geneticist, broadcaster, and environmentalist), or Bruce Gregory (the associate director of the Harvard–Smithsonian). These authors presented epistemologies that stood in contrast to the realist and objectivist ideas students brought to the classroom. Students wrote reflections about what they read and we discussed the readings in class. Moreover, in addition to reading about science as it is really done, students spent much of their time in the laboratory (about 70 %) designing and conducting their own investigations within the context of what the provincial curriculum had foreseen. Back then, I believed that such an approach would allow students to

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N. Mansour and R. Wegerif (eds.), *Science Education for Diversity: Theory and Practice*, Cultural Studies of Science Education 8, DOI 10.1007/978-94-007-4563-6_3,

develop not only a better appreciation of how science works, but also to develop a different approach to their own learning. Much to my surprise, at that time, there were students who remained strongly committed to a realist perspective on science. Even more surprising to me as a teacher, there were students who did not at all like laboratories – even though the science education literature had shown that laboratory activities were "motivating" students or at least seen as a form of time-out from the lectures that they normally attended including the other classes at my school.

Tom was one of those students who not only stated his aversion to laboratory activities but also who provided extensive explanations about his position (e.g., Lucas and Roth 1996). In short, Tom wanted to become an engineer and had set as his main goal to enter one of the country's foremost engineering schools. To get into the school, he had to take physics at the high school level and receive provincial academic credits of sufficiently high standard to make it into the school of his choice. He explained to me that this meant that he had to do well on examinations and that he had to be well prepared to do well in his introductory-level courses at the university. This is why he wanted to know and learn the scientific canon. He said that he completely bought into the constructivist argument about the individual construction of knowledge – and precisely for this reason, he rejected laboratories. He explained that the laboratories would allow him to develop ideas and understandings based on his prior knowledge. These ideas and understandings might not be consistent with the scientific canon that was the measure against which his own performance would be held in year-end, provincially controlled high school examinations and future examinations at the university. Considerably more negative than the class average in his appreciations, he disliked especially the negotiation of meaning, student autonomy, and student centeredness that characterized the classroom learning environment that I had organized. He said he wanted me to lecture, tell him the right answers, and help him do well on examinations and end-of-chapter textbook problems.

At the time, I was baffled. As a teacher, I had always been concerned with the well-being of my students. I designed my classroom environments to involve them in decision-making and provided students with the freedom to allocate their time according to their needs – as long as major milestones were met. The students did their work at the time that they felt at their best. Why would Tom have developed such a negative attitude toward a learning environment that was designed to give him greater control over his own learning? Why would Tom desire to abandon a high degree of self-determination in favor of an external locus of control over his activities and the evaluation thereof? Today I understand that in those days I was thinking about these issues from *within* science education rather than from a total-life perspective that I developed only more recently (e.g., Roth and van Eijck 2010). Tom's overarching goal was to become an engineer. He took physics not because he particularly liked the subject – in fact, he disliked the subject to a considerable extent as much as the approach I had chosen for teaching it. It turns out that he also played the piano; this he liked to a much greater extent than doing physics. But in the academic context of the province at the time, he needed the physics course to get into engineering.

Today I understand much better how to approach this and similar issues. In the course of writing my book on Bakhtinian perspectives on learning, I realized that much of what concerns us in our lives is suppressed and repressed in school (Roth 2009). Thus, in our lives, we participate in multiple *activities*[1] in the course of a single day or week. Each of these activities is characterized by a collective object/motive – farming produces resources for making foodstuff, manufacture produces clothing for keeping warm, and schooling reproduces societal structures and labor resources. To understand Tom's stance with respect to physics, I must not attempt to understand it through terms such as "science identity," "science motivation," or "interest in science." Rather, I realized that I needed to take a perspective of his total life. As part of his life, he comes to participate in different activities with different object/motives. To understand Tom, we need to look at all the activities and *collective* object/motives, which, for him, stand in a highly individual, singular, hierarchically organized relation. Thus, becoming an engineer was on the top of this hierarchy, and playing piano was also somewhere near the top. Doing or knowing physics was much less important and only subsidiary to his main personal goal: becoming a member of the engineering community. In fact, this hierarchical network of object/motives may be used in redefining the concept of *personality* (Leontjew 1982).[2] It is this position that I articulate here because it allows us to understand science education from the perspective of the diversity of an individual's life across a diversity of activities, involving a diversity of relations to other people from equally diverse backgrounds. In the course, I develop a complementary concept, *subjectification*, which is used to denote the developmental process of becoming – as the subject of a specific activity – the context and relations of which we also find ourselves subject to and subjected to. *Personality*, therefore, integrates the different forms of subjectivity that we are and experience while participating in different activity systems.

Cultural-Historical Activity Theory

Cultural-historical activity theory is the result of efforts to develop a Marxist psychology – a psychology concerned with real, living human beings in flesh and blood, their needs, interests, and emotions rather than with abstract subjects constructing their minds and knowledge about the world, who relate to others and

[1] *Activity* is understood throughout this chapter in the manner that the concept was developed in the German and Russian languages of the founders of activity theory. Thus, these languages make clear distinctions between *Tätigkeit/deyatel'nost'* (activity) and *Aktivität/aktivnost'* (activity). The first term refers to a specifically *societal* formation designed to meet a collective need (food, tools, shelter), whereas the second term refers to being busy without a collective object/motive (predmet).

[2] When a Russian author's name appears in the text, I consistently use the English spelling of the name. When I reference an original or a translation into another language (e.g., German), then the name appears as printed on the book cover.

the world only through representations. It is a psychology that has no interest in the Cartesian opposition of body and mind, the Galilean (constructivist) distinction between mind and world, or the opposition between individual and collective (e.g., Vygotsky 1989). There are two schools of thought that have developed. The first emphasizes the structural, synchronic aspects of an activity system, which is viewed from a god's eye perspective emblematically symbolized in triangular representations; the other emphasizes the dynamic, diachronic nature of activity from the perspective of the subject (cf. Roth and Lee 2007). Here I follow the second approach, which is more consistent with the declared intents of the founders of what today we call *cultural-historical activity theory*.

Activity and Actions

Fundamental to cultural-historical activity theory is the concept of human labor, purposeful activity (*Tätigkeit, deyatel'nost'*) that transforms nature into the means that satisfy human needs (Marx and Engels 1962). Since Marx, the simple moments[3] of activity are recognized to include labor itself, objects, means of production, and the anticipated result, which exists ideally already in the imagination of the worker. Labor not only transforms the material but also realizes the goal, literally objectifying in the process of making some object product. As humans change nature by working with and upon it, they change their own nature as well. Other important moments of activity are the rules and laws governing property and human relations, community, and the division of labor (Marx and Engels 1963). Activities are collectively motivated, serving to meet the generalized needs of members of society, which can be thought of as a network of activities. Because of the existing division of labor, individuals may participate in the activities of their choice and, in exchange for their income, meet their needs – not only those that sustain their lives, like food and shelter, but also those that meet their extended needs related to leisure and pleasure. That is, by participating in the *collective* control over conditions and in the *collective* production of provision to meet the needs of humans generally, members of society expand their *individual* control over their conditions and the production of the means to meet their personal needs.

Activities do not realize themselves: Goal-oriented *actions* do. The relation between the two – activity and action – is mutually constitutive. An action is performed in view of the activity that it realizes in a concrete manner; but the activity exists only in so far as it is realized through a series of actions. Whereas activities

[3]In dialectical materialism, a *moment* is a structural aspect of a phenomenon that cannot be understood on its own but only in its part/whole relation with the entire phenomenon and, thereby, in its relation to all other moments that can be identified. The moments do not add up to yield the whole, because, among others, they may in fact stand in a contradictory relation to other moment in the same way that particle and wave nature do not add up to yield the phenomenon of light.

are motivated collectively, oriented toward the transformation of specific (concrete, ideal) objects into results for meeting general and generalized needs, actions are oriented to realize specific goals on the part of the subjects of *this* activity.

In labor, there are two concurrent and interrelated dimensions that are completely separate and independent in other epistemologies: *material* praxis and its *ideal* reflection in consciousness. In human beings, material reality comes to reflect itself in ideal, generalized form (Vygotskij 2002). Each aspect of the activity system therefore has to be understood as existing and appearing on two levels: the material and the ideal (Leontjew 1982). This takes into account a fact initially articulated by Marx that human beings do not just produce something to meet an immediate personal need – in the manner chimpanzees fashion tools to fish for termites – but they produce to meet a generalized (i.e., collective) need in exchange for something that allows them to meet their personal need. Such anticipation is possible only if reality exists a second time, ideally, that is, in consciousness, so that the meeting of individual needs can be anticipated and deferred.

Activity is directed at the transformation of some object. Marx's German and Leont'ev's Russian again offer two different terms where English has only one. The term *Objekt/ob'ekt* (object) refers to something material or ideal that the person is actually working on, whereas *Gegenstand/predmet* (object) denotes something generalized at the material or ideal level that also represents a need/motive.[4] To capture the presence of both levels in any concrete instance of human praxis oriented to the transformation of an object into a result – i.e., the motive of activity – I use the notion *object/motive*. That is, the two moments of activity, its inner (ideal) and outer (material) form, constitute a single unit. This is so because when we look at and analyze any concrete activity, humans are involved in transforming something into something else. They do so *in order to* achieve something, and this *in-order-to* is as much aspect of concrete reality as the *for-the-purpose-of,* the *what-with,* the *who/what-for*, and the *for-the-sake-of-which* that characterizes everyday attention to the world in the manner that it offers itself to the subject.

Subjectification

Central to understanding activity is the (individual or collective) subject of action who, using means of production (tools), transforms some object into an outcome. In the course of so doing, the subject itself is transformed in multifarious ways. First, the subject expends energy and therefore is materially transformed. Second, as a result of repeatedly producing the same form of movements (that realize actions),

[4]This is why the products of human activities can create new needs, for example, the production of the cell phone created the need for cell phones so that today many people "cannot live without it." The need did not just exist; it is not a basic need that "must" be filled for humans to live. It is a need that is the result of productive human activity (Leontjew 1982; Marx and Engels 1962).

the body or bodies of the subject are transformed, becoming increasingly practically competent. Third, in praxis, the comprehension of the subject is changed, as it increasingly comes to understand praxis on the ideal level. Fourth, with increasing practical and ideal competence, the changes of the subject are recognized within the collective (community) writ large (i.e., not only within a specific group that might constitute the collective subject of activity but also within all those who are the subjects in other concretizations of the activity). We may therefore understand the transformations that an individual undergoes in the course of participation in activity in terms of a trajectory of legitimate peripheral participation (Lave and Wenger 1991). Alternatively, we may understand the process as one of *subjectification*. By this term I mean, drawing on an articulation of the concept likely meant very differently, "the production of a constitutive body and of a capacity for enunciation not previously identifiable within a given field of experience" (Rancière 1995, p. 59). This production occurs through a series of actions; and the "identification [of the body and the capacity for enunciation] comes with the reconfiguration of the field of experience" (p. 59). I read, and use, this description of subjectification in the following way. In labor I use actions to realize the activity that orients what I do. Through my actions, both I, as a constitutive body, and my capacity for enunciation are changed. The new state of my body and the new capacity for enunciation were not previously visible in my field of experience (activity). The production of my body, therefore, and the manner in which it is identified in discourse, is part of the reconfiguration of the field (activity). The advantage of such a formulation over others is that it escapes the structure–agency opposition, where the agent is the source of what happens. In Rancière's approach, the subject is not the antecedent of the action but is subject to and subjected to the field. Rather, the acting body is identified with a reconfigured field of experience. It is not the intentional action itself that brings about the change but change is a collateral of acting in a field, which changes, and these changes allow the identification of the body and the capacity for enunciation.

Thus understood, the term subjectification, therefore, allows me to denote the changes that the subject undergoes in and through its participation in activity. Of course, the subject is subject of activity – doing what it has decided to do. Learning, however, occurs not only when there is learning-oriented action but also whenever there is practical activity. Even when a person engages in the most routine, perhaps most boring actions, the subject is transformed. We could show this in the case of fish culturists, where during some parts of the year a person might be required to throw by hand, using a scoop, up to 200 kg of fish feed. Whereas newcomers often describe the task as tedious, repetitive, and hard on the body, old-timers do distinguish from afar whether a fish-feeding individual is experienced or not (Roth et al. 2008). Thus, even though it appears to be a routine and repetitive job, fish feeding changes the individual who does it. In fact, we could show that as the feeding individuals watch the fish they feed, they become better at feeding, for they begin to stop when the fish no longer take the food. The required perception is developed in and through the feeding process itself, however boring it might appear.

The term subjectification also allows me to theorize other essentially passive forms of the experience that come with being a subject. Because activity is collective, involving material aspects, tools, division of labor, and rules/laws – all of which are the results of cultural-historical developments of the activity – the subject also is *subject to* the determinations that come with any field. That is, only in an ideal world is some action or activity accomplished unproblematically. In the real world, the agent is not only the subject of but also *subject to* and *subjected to* real-world conditions and societal/material relations. As a result of this subjection, participation in societal relations also implies the dialectic of discipline. It is through the disciplining of my body that I develop an intellectual discipline (Foucault 1975; Roth and Bowen 2001). Becoming an increasingly competent member in a community of practice also means being increasingly subject to its determinations. Participation in a field therefore also is subjection to the field.

The upshot of this situation is that there are inner contradictions for diversity. Being – and becoming as – the subject of activity must not be conflated with agency. There is an inherent passivity that comes with any form of participation. This passivity is captured in the adverbial formulations "to be subject to" and "to be subjected to." A community is defined by its membership. Members also recognize nonmembers – e.g., by their nonstandard material and ideological practices. Diversity must be thought through this dialectic of renewal and change of a community as it deals with the inherent diversity that comes with the incorporation of *any* new member not just with the incorporation of members from a visible or non-visible minority. The term subjectification allows us to understand the issue of diversity in the tension of an agency | passivity dialectic.

Personality

> But the human essence is not an abstractum inherent in the singular individual. In its reality it is the ensemble of *societal* relations.[5] (Marx and Engels 1958, p. 6, my translation, emphasis added)

In the wake of Marx's dictum, cultural-historical psychologists including Lev Vygotsky and Alexei Leont'ev viewed human beings in terms of the ensemble of societal relations that they entertain in the course of their lives. This leads to the understanding that "any higher psychological function was external; this means that

[5]Here, as elsewhere, my translation takes into account what Marx has written rather than what translators into English produce – perhaps for political reasons. Marx writes about *societal* (Ger. *gesellschaftliche*) rather than social (Ger. *soziale*) relations. In the original text translated as "Concrete Human Psychology" (Vygotsky 1989), the authors quote Marx using the Russian equivalent for societal (*obshchestvennyj*) rather than the one for social (*sozial'nyo*) (Vygotskij 2005). Similarly, the Russian and its German translations of *Thought and Language* use the same equivalent of societal as distinct from social, whereas the English translation only uses the adjective social.

it was social; before becoming a function, it was the social relation between two people" (Vygotsky 1989, p. 56).[6] As a result, "the personality becomes a personality for itself by virtue of the fact that it is in itself, through what it previously showed is itself for others" (p. 56). He makes direct reference to Marx and Engels (1962) who stated that it is only through our relations to *others* as human beings that we relate to ourselves as human beings. Both Self and Other are concrete realizations of the genus *man*. The concept of personality was subsequently developed in terms of the activities (activity systems) that a human being participates in the course of its societal and material life (Leontjew 1982).

In cultural-historical activity theory, personality is understood in terms of the category *activity*, its inner structure, existing mediational relations, and the forms of consciousness that activity produces. This allows an articulation of the stable basis of personality and the aspects that pertain to it and those that do not. In this conception, "the real basis of human personality is the totality of the, by nature societal relations man entertains with the world, precisely those relations that are *realized*. This occurs in/through his activity, more precisely, in/through the totality of his manifold activities" (Leontjew 1982, pp. 175–176). Personality transcends the traditional oppositions of individual and collective, inter-psychological and intra-psychological, or inside and outside – because it is interested in those "transformations that derive from the self-movement of the subject's activity in the system of societal relations" (p. 173). Leont'ev understands the subject in terms of life forces that can operate only via the outside. It is there, in the outside, that the life forces *concretely realize* themselves and thereby constitute a transition from cultural possibility to concrete material reality. The real foundation of personality, therefore, does not lie in a set of preprogrammed genetically determined routines, natural capacities, knowledge, and competencies. Rather, personality is founded "on a system of activities that are realized through these knowledge and competencies" (p. 178).

In this approach, then, personality is not defined in terms of the individuality or singularity of the person but through the totality of societal relations that occur within collectively motivated activities. This immediately leads us to understand the stable basis of personality: society and societal relations. The basis of personality, therefore, is not, as in constructivism, the individual Self that produces itself and its cognitive structures based on its biology. The basis is that which is specifically human about our species: society, its historically evolved culture, and the kinds of relation that both enable and constrain the interactions with the others and the material world. What remains to be worked out next is what is different between different personalities if the basis of all personalities is the same: society and the forms of activities that guarantee its reproduction and transformation. This understanding of personality, therefore, goes well with the position on subjectification articulated above and understood as a process resulting from the association of a

[6] In this quote, Vygotsky does indeed use the adjectival forms *sozial'nyi* and *sozial'nim*, social but which may also be translated as societal.

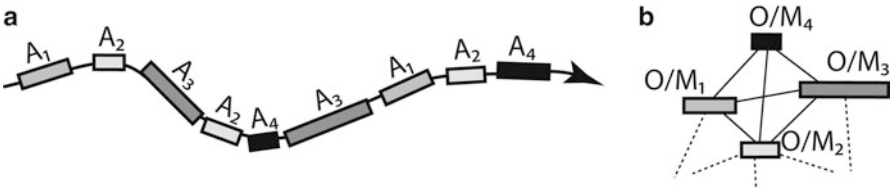

Fig. 1 Cultural–historical activity theoretic perspective on personality. (**a**) In the course of its everyday life, the individual participates in many different activities, with different *collective* object/motives and subjectivities. (**b**) Personality is the result of the hierarchical organization of collective object/motives into "knot-works"

constituted and constitutive body and forms of enunciation, inherently related to participation in collective life.

In the course of a day, week, month, and so on, an individual participates in many different activities (Fig. 1a). These activities have collective object/motives: They arise from generalized collective needs that are met with the end results of the productive activity. Within these different forms of activity, the individual constitutes different forms of subject, with different forms of subjectivity undergoing different forms of subjectification. Thus, an individual, who is a science teacher during the day, may be a (graduate) student in the late afternoon, a shopper in the early evening, a parent somewhat later, a hobby beekeeper attending a bee club meeting, and finally a husband and lover. It is still the same individual (body) but the forms of subjectivity are different and so are the forms of development that occur in each form of activity. For the individual, the different object/motives and activities come to be tied together into a hierarchical "knot-work" (Fig. 1b). It is precisely this knot-work that defines personality. The core of personality, then, is a hierarchy of *collective* activities or object/motives, which is the result of its own development. That is, "the 'knots' that combine the individual activities are tied not by the biological or mental forces of the subject, which lie in him, but by the system of relations into which the subject enters" (Leontjew 1982, p. 179, my translation). These relations are characteristically *societal* in nature rather than social. This is so because there are other social animals. But the human form of consciousness is specific to society. It is precisely this consciousness that distinguishes, for example, even the worst builder from the best bee: It allows the human "to build a cell in his head in advance of building it in wax" (Marx and Engels 1962, p. 193).

Once we take the perspective of personality as the ensemble of societal relations an individual has participated in, we come to understand that we no longer are able to investigate something like "science identity." For whatever happens in a science classroom is, from the perspective of the individual person, only part of a larger, stratified knot-work of activities and object/motives. Thus, for Tom, the physics course that I was teaching had a much lower priority than the object/motives of other activities, those that he engaged in – including playing piano – and those that he anticipated to become part of (engineering). Playing the piano is not some singular interest that characterized Tom; rather, it has constituted a form of activity

since its invention with collective object/motives that are concretely realized in his playing of the piano. The specificity of his individuality arises from the specificity in which the various collective object/motives available in his society come to be knotted together and hierarchically organized. Moreover, as soon as some activities are connected, this knot-work constitutes the driving force of its own development, continuously reinforcing or re-arranging the position of the different object/motives within the overall hierarchy.

On the Way to Become a Doctor

> I haven't done any of these things, so I can't really say I don't want to. (Katie)

To better understand the relation of activities, subjectification, and personality, my research team and I followed three individuals over a 4-year period. One of these individuals was Katie, who, at the time of first contact, was enrolled in an 11th-grade biology course and a career preparatory course taught simultaneously by the same teacher. She participated in an internship in a scientific laboratory that my research center had organized for high school students. Katie participated in interviews before and after the internship and then again over the course of several semesters while enrolled in a local college. During the period, she took further science courses, worked in a lingerie store, took a course in holistic health and healing, job-shadowed a doctor and a respiratory technician, and, still during 12th grade, volunteered once a week in a hospital. Later, she took a course as home support and resident care attendant, which included 3 months of taking classes – such as "Health and Healing," "Lifestyle and Choices," or "Personal Care Skills" – and 3 months of practicum. She continued working in the lingerie store but also worked as a casual in a resident care facility. She then enrolled in a science program, taking physics and mathematics courses while working as a resident care assistant during the summer break. We interviewed her again nearly 4 years after starting the research in which she participated, and we videotaped her in two of her college courses: microbiology and organic chemistry.

Near the end of her second year in the premedical program at the college, Katie suggests that she did not decide to pursue the idea of becoming a doctor because of the sciences. In her early life, the sciences only played a minor role. There were many other formative experiences and activities in which she participated that would make becoming a doctor the primary object/motive according to which all other object/motives and activities would be organized.

In the following, I account for different activities Katie has engaged in and the relations that she has entertained in the process. In her case, the extended amounts of time that she spent in the hospital and the relations with her mother, a hospital worker, became formative early on. Katie made a decision to become a doctor; and this object/motive became the central organizing feature in the hierarchy of activities and related object/motives that defines her personality and the development thereof.

Even within the various activities, she sees her subjectification in terms of the overall goal of becoming a doctor, which encourages her to do things even though these are not her preferred activities (e.g., 11th-grade biology, organic chemistry) and to leave aside others, even though they might come easier to her (mathematics, physics) or that she might prefer (going out with friends). To give readers an appreciation of the kinds of activities she engaged in, some of which became formative, others playing a mediational role, and again others not playing a central role in her development, I present her participation in five areas: (a) early activities and relations, (b) high school science, (c) a science internship in a university biology laboratory during 11th grade, (d) college science, and (e) training as a resident care assistant.

In each of the accounts, readers are encouraged to attend to the dual aspect of development. First, as Katie comes to participate in an activity, she undergoes a process of subjectification, which involves becoming an increasingly competent agent, on the one hand, and being a person subject to and subjected to the context, on the other. The individual activities and the associated object/motives are not all valued equally; they take a different place in a developing hierarchy, the topmost feature remaining fairly constant in a relatively early part of her life: becoming a medical doctor. Katie engages in a variety of activities for the purpose of increasing the likelihood to get into medical school and of realizing the goal she has set herself for herself. That is, we can account for her personality completely in terms of the societal relations in which she engages, which provide her with the forms of experiences and discourses on which the ultimate interest and decision is founded. Nothing Katie can tell us is singular – everything we find in the accounts is constituted by forms of discourse, the ideological resource par excellence.

Early Activities and Relations

Ever since she was 15 years of age, Katie has wanted to be a doctor. Katie's mom works in a hospital. She now is a porter, bringing patients from the X-ray department to other departments, but she used to be a nurse. When Katie was a child, from the time between 5 and 10 years of age, she and her sister visited their mother in the hospital. It was the children's principal way to spend some time with their mother, who "would be working a lot." While in the hospital, Katie got to talk to the nurses and spent time at the bedside of patients. She recounts "lik[ing] the smell of it, too." In the hospital, she "talked to the workers." She went "a couple of times actually where [her] mom works and [she] talk[ed] to people around there and the environment is just so friendly and people are all there for the same reason to help people." These people included doctors and X-ray technicians in addition to the nurses and patients. As a result, Katie came to "just feel really comfortable" in the hospital and around the people whom she encountered there. During the interview, she describes her relation to the hospital as weird: "It was weird. A lot of people hate hospital, but it was very comforting for me, like it was like a welcome feeling, like I feel that peace there."

An important aspect related to her hospital experiences has to do with time. Katie noted that her mother "would be working a lot"; it is for this reason that she changed her job and became a porter, where "she would have less hours." Katie explains, "She'd have to work three shifts on and they're like eight hour shifts. Three shifts on and then she'd get three shifts off. Three shifts on but it's sometimes she would work from like eleven o'clock at night to seven in the morning. So I'd always have babysitters and stuff. Like she was always there for me but it just wasn't the same. So I don't want to, like I'm not saying I had a bad childhood. I obviously had a really good childhood, but I want to provide for my children." Katie would enjoy becoming a pediatrician. But here, too, the amount of time required mediates her choice: "there are way too many hours for that so I wouldn't be able to have a family and no family life." On the other hand, "if the hours are good, one hundred percent that is what I would do." Thus, for example, specializing in dermatology would be of interest, "because it is still in the medical field and there are good hours; and it gives you lots of money too." She would be able to work Monday through Friday. This would differ not only from what her mother has done during her early years but also from a specialization in general practice, where "you are still attached to your patients outside of the hours." As a dermatologist, in contrast, "you don't have to deal with anything outside of the hours and you can be done by four in the afternoon." There are shortcomings, however, with the job of a dermatologist: working in an office or clinic rather than in a hospital. Moreover, she feels that the dermatologist really helps: "Dermatologists help people but they don't help them if they are hurt but only [on the] surface."

Although the early experiences have allowed her to place the object/motive of being a doctor very high in her hierarchy, it is not the highest priority: Having a family is even higher. The kind of hours that her mother has worked would interfere with having a family. She says, she wants to have "good hours, so it enables me to still have a family, which is a main factor in choosing a job, too." When the interviewer insists on the job that she had selected as her most favorite career choice, Katie responds again that the favorite career is "what my heart wants, but these [have to] enable me to have a family. So there are different factors to why I pick [the careers]."

Katie not only has experiences in activities that she is necessarily part of as a young member of society – e.g., going to school or being part of a family unit – but also actively creates opportunities for new forms of relations and the experiences that come with it. For example, she signed up for a youth volunteering program as part of which she intended to spend time in a hospital, which would allow her to engage in further relations with patients and hospital workers. At another time, she arranged for shadowing a female doctor, that is, to engage in a particular kind of relation, following which she changes the hierarchy of career possibilities. She now ranks family practitioner on the top of her career choices. Katie explains: "[I changed] because of my job shadow experience. Because I was unsure if I wanted to become a family doctor because of the weird hours, cause it's like an eight to four job. But you're always on call twenty-four hours as well. Like at the hospital, if one of your patients needs you or something, you have to be there. And there's not

really a question about it. So that's why I was unsure. But now that I've had the opportunity to shadow a doctor it shows me that no matter what the hours are, you make sacrifices for any job and those are the sacrifices you're going to have to make if you want to be happy as well."

Another important form of activity for Katie is sports. She has participated and continues to be active in different forms of sports. For example, she started to play soccer in seventh grade and played on a soccer team in a league. She plays a range of other sports – including basketball, baseball, and hockey – and sometimes goes to the gym. Here she has had, "at one time, a personal trainer." It is in the relation with the personal trainer that she learned about how "they show you and say what you want and they target muscle you want to do." She lists personal trainer as one of the possible careers that she could have been be interested in pursuing: perhaps "running like a local gym" where she would teach people about the body and food. She is keenly attuned to her body, in part because of relations with her mother, where she learned to detect that "if you eat bad food the next day you are tired, you don't want to do stuff, you are out of breath all the time. But if you balance all your meals and everything then you just have so much energy, and you sleep well. And just I have always found interesting how what you eat can relate to everything in your body."

High School Science

In high school, Katie did not like the sciences very much. She had a special aversion to chemistry, and she did not do well in her final mathematics course, even though she repeated it to improve on her grade. "In school, you're sitting down in a class for like an hour and twenty minutes at a time. You're listening to a teacher talk to you, or you're reading." Katie preferred "hands on." So even biology, which she attends at the time, she is not really having the kinds of learning experiences that she prefers: "Like in biology we did dissections and stuff like that like there's some hands on – but a lot of it is bookwork and a lot of it is memorization." She does understand much more and much more quickly when she has opportunities to "do hands on": "I learn a lot of things in a short amount of time in the lab, whereas in biology eleven I almost forgot, like I forget a lot of things because you're just reading it and you're doing it for the purpose of just to read it to get a good mark on your test." In terms of subjectification, the laboratory aspect of science is formative, whereas the lecture parts has tended to turn Katie off. Many years later, she notes that she did not like science during her high school years.

Perhaps unsurprisingly, then, we find Katie always involved in the laboratory tasks that the teacher has prepared for the students. Thus, even though she says, "I don't know, I don't like researching animals at all" or "I'm not really interested in any of the plants," she is the first to take the eyedroppers to squirt water onto a planarian to see how it reacts to the stream of water. Katie mounts the Petri dish on the microscope to study the reaction of the planarian to different conditions of

Fig. 2 Katie often is at the forefront of the task engagement in the school biology laboratory. (**a**) She is the first to handle the clam that the students are to investigate. (**b**) She is also the first to investigate the planarians, which students are invited to investigate behaviorally under a number of conditions

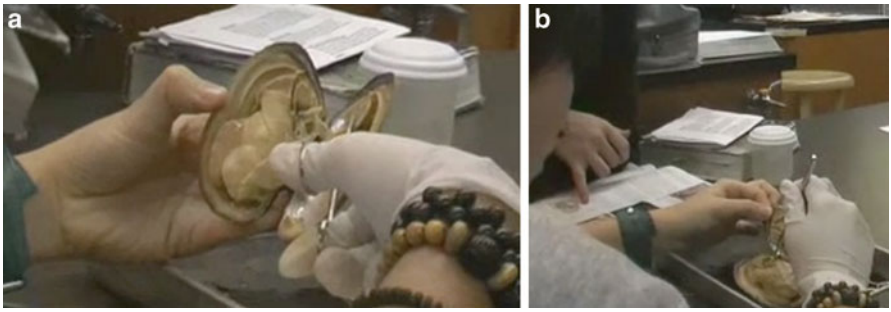

Fig. 3 Katie dissects a clam for her group while the others look on. (**a**) Katie uses surgical scissors to cut the tissue from the shell. (**b**) While Katie picks to get at the adductor muscle, John points to the upper part of the diagram of a clam

light (Fig. 2b). Three of the five students in her group merely look on and listen to what she has to say. Katie is also the first to take the clam to be dissected in her hands, though wearing a glove at least on one hand (Fig. 2a). Katie is even more explicit in saying, "I don't like mollusks and stuff like that." She looks forward to her 12th-grade biology class, which is concerned with the human body. This is the aspect of science that she likes, whereas there are many other things that she does not like. That is, her interest in the topics of the biology course is mediated by the same kind of priorities that also mediate her career choices.

As the students do the lab, Katie takes the clam into her left hand and begins to cut through the tissue, following the teacher's instruction. Three of the other four students in Katie's group are looking on. John has the textbook opened at the page where there is a drawing of a clam. He has oriented the book so that Katie can see the diagram with its inscriptions. Katie begins by using her surgical scissors to cut the tissue from the shell to which it is attached (Fig. 3a). She places the open clam in front of herself in the dissection tray.

K: ((*looks into the textbook at her left*)) Where is the heart? Oh so this is the posterior and adductor muscle. ((*turns to the clam in front of her, points to the top left part of the mollusk*)) This is the adductor posterior muscle. ((*She pulls some tissue aside with the tweezers*)) ((*Nobody talks; Katie picks away on the clam, Fig.* 3)) Wait, this little tube, there is a little tube ((*she looks toward the biology textbook to her left, then continues to pick away at the tissue around the posterior adductor muscle*)).

We can see Katie here, as in many other laboratory situations during her high school years, taking the lead. She is taking the lead even in those situations that she does not appreciate all too much. She comments on the smell, "It smells clam," with an intonation that shows less than appreciation for this aspect of their laboratory work. It turns out that she appreciates this aspect of science much more so than other aspects and that she develops something of a "knack," as we would observe some 4 years later in her college laboratory courses as well as during the internship in a leading laboratory in the biology laboratory of the local university.

Science Internship

One of the courses in which Katie enrolled during her 11th-grade year was "Career Preparation." The course was organized by the same teacher who also taught biology. As part of the course, the students are required to provide evidence that they have had workplace-related experiences, such as trailing a professional for a while, doing an internship, or volunteering in a relevant context. During the early parts of the course, the teacher talked about a variety of opportunities for career preparatory students to get a better understanding of science. Katie selected to do an internship in a large, world-renowned university biology laboratory concerned with all aspects of water quality. During an interview conducted prior to the start of this internship, she indicates that she is "sort of interested in it, but if it was on the body, I would be very excited." She adds by saying that she is still excited about doing the internship and that she anticipates it to be interesting.

On that day, the students participated in isolating bacteria from water collected some time ago. Each student gets a turn at placing the filter paper, moving a measured amount of water into the filtering device using a pipette, and running the pump that draws the water through the filter paper (Fig. 4). Nikki stands behind her on the left watching over her every move. She prepares a glass container into which the filter paper with the filtrate is placed. Cass makes some comment, but Nikki says, "No, you don't want to sterilize them now, because it will kill all the bacteria that we're trying to isolate." She takes over all the samples that the high school students have prepared and explains while turning about: "These samples are going into the incubator." After they had walked through several other laboratories to the one with the incubator, Nikki placed the tray. Just as she begins to explain what they would do on the next day, Katie expresses interest in the fact that they are all wearing gloves all of the time.

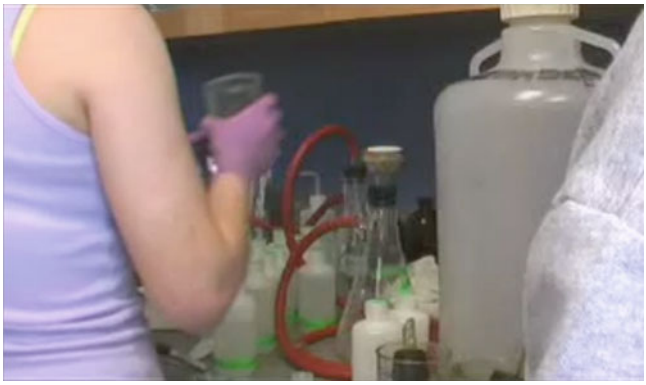

Fig. 4 Katie is gaining confidence as she does her part in the ongoing scientific experiment – here preparing a filtration

Katie: just a question are we wearing the gloves to protect ourselves from the bacteria or to protect the bacteria from ourselves. cause if we = re touching?

Nikki: y::yea; (0.32) well, we = ll change them before we do anything (0.66) drastic again (0.56) its to protect them from us. (0.77) tomorrow (0.35) theyll look something like this.

Cass: cool.
(0.45)

Nikki: and you can see the blue and the red.

Katie: uh hm.
(0.88)

Nikki: great fun
(0.82)

Cass: the blue is e coli.

Nikki: the blue is E coli.
(0.56)

Katie: and the red is just random bacteria?
(0.44)

Nikki: uh:: the red is something actually completely different. ≪p> well not completely different> they are fecal coliforms (0.40) which is just other bacteria that live in your intestines.

This transcript shows the relations with their supervisor Nikki oriented not only to better appreciate what they are doing but also to better understand the context within which they work. This interest here pertains to the interaction between those conducting their analyses and the organisms that they are working with. In Katie's question, we see an intuitive understanding that the affect of bacteria and worker is mutual, and the gloves may protect one agent from the other. As her classmate and

best friend Cass, Katie is also interested in the contents of the glass dish, including those contents that are not related to their current investigations: the fecal coliforms that show up as a red signal.

As part of the internship, Katie and her peers also had the opportunity to attend a DNA seminar. It was their first science seminar ever. When asked about this experience, the following conversation unfolded.

Katie: It is almost a scary experience.
PL: Scary?
Cass: It is kind of like that is what I need to learn one of these days?
Katie: Yea, like I have to know and like there are so many acronyms, so many huge words that are like accepted in that lecture. They were accepted like saying "hello," like it just second nature for them to understand what that word means. For me, I'd have to look it up or okay then he'd already be moving on to next thing like you're always behind.
Cass: Yea, like it almost shows you like a window of what you're gonna have to learn, like the level of education you are going to be at in a while. And it's like, "Wow," like if I go down that path I'm gonna be like.
PL: But [does] that scare you?
Cass: Yes very.
PL: But somebody studies that, what I will know in the future?
Katie: It is exciting but scary.

"I feel uncertain and scared but I never thought I'd feel foreign, like stereotypically foreign. Like I'm Canadian and you're just going into the U-Vic lab you're not going to feel foreign. But you feel different and almost excluded from everybody else because you're not wearing the same clothes. You don't know what they know. So you're just drawn into a situation that is not everyday life, so it's very foreign." Katie continues to explain: "It's just so different and so out of the ordinary. I never would have thought of going into career prep biology I would go work at a U-Vic lab; like you never think of that because this is an actual project that the scientists are working on, so I think that's why it's *so* foreign. It's not just me 'cause I job-shadowed a doctor. You see doctors every day. I don't know that you see scientists every day, so it's very foreign."

Almost 4 years later, we interviewed Katie again about her experience during the internship. At that time, she had forgotten the details of the experiments she had participated in at the time – even the fact that it had occurred during 11th rather than 12th grade. But in the course of the interview, she talked about how she was personally affected and about the relation with Nikki, the laboratory technician. This account has a great family resemblance with what Katie had said right after the experience. She says: "the main thing I learned is probably just to be more confidence, because you always think even just coming to U-Vic, and being able to work in a lab was something. Like clearly we weren't doing it as aseptically as Nikki was, as clean, as precise. But we were still able to do it. Just knowing that you can do something where somebody has worked so many years toward being

able to work there. You cannot do the same thing, produce the same work. But you have the ability to be able to do it. When you are accepted out of high school, it makes the work experience less scary. Because before, when you were in high school, everything is just unknown: 'After high school,' you know, 'I am going to U-Vic or Camosun [College]' and it's so big: 'What am I going to do?' But when you get here, you realize it just more people, doing what they have to do everyday kind of thing. I think it is the exact the same thing as high school, just different materials, you know. And so confidence was something that I learned from there. And then also just even techniques, like I'm doing a lot of same techniques that we've done, like dealing with pipetting and proper cleanliness, and isolating colonies, and subculturing. Like I am doing all of that now and I've already seen it. So it's not new and it has allowed me to be more comfortable."

Katie summarizes her experiences in the university research laboratory in this way: "We got a lot out of it, we did everything she did and we made new friends, so it's an experience that not a lot of people get to do, like hardly anyone." Throughout her account, she attributes much of the positive experience to the laboratory technician and the kind of relationship she has had with her. Katie experienced an increase of her control over the laboratory conditions, and we would be able many years later to observe this tremendous confidence in the laboratory compared to her college peers.

College Science

For Katie, the sciences constitute the knowledge from which "everything else branches." Because science is in everything, and it explains everything, one lives science every day. Thus, "it even explains people who are working in fast food, why the food is the way it is; or, if they are unhappy with their job, it's neurological, too. Science just explains absolutely everything. So when you have the base of absolutely everything, you are powerful." She summarizes: "knowledge is power." Knowledge allows her to "be higher up in life" because "knowledge allows her to be able to figure things out and where to go and how to save money." Studying science allows her to create career opportunities. Although Katie describes herself as being "way better in math and physics, she is still pursuing biology, just because she wants to go into medicine." Mathematics and physics are logical, "Like, 'how does it not make sense?'"

Getting ready to take the MCAT and preparing her portfolio for application to a medical school organizes everything that Katie does: her study and work habits as well as the subjects she chooses. With respect to her studying, Katie says: "You've got to do this. You've got to work hard. You don't really have an option to get bad grades so you have to study. You have to choose studying over going out with your friends or you have to choose." Here, she points out the passive aspects of participating in a form of activity, where there are particular constraints that do not tend to be selected by the subject of activity. To become a doctor, she does have to

work hard; and learning to work hard, staying at home rather than going out with friends are aspects of the process of subjectification that is part of the trajectory she has chosen and that organizes her life. Katie views the subjects she takes in college through the lens of becoming a doctor or through the lens of her most important interest: the human body. For example, it is precisely when they cover sugar and its chemistry that Katie can relate organic chemistry to the body, which makes it "more applicable" and therefore more interesting to her. She studies the subject and finds it useful in as far as it is "helpful because it explains the reactions within the body."

As her time in college went on, she came to appreciate science more than she has had in high school or during the first year. She describes: "In high school, everything is laid out for you on the board, everything single piece of information you need to know is laid out on the board. And then you are tested on that. And you're generally given an outline on the test. Then in first year science, I feel like they almost give you everything you need, almost everything. But you still need to do a bit reading. You still need to go to your lab and apply that knowledge to it, to reiterate that knowledge. And then second year, I find they don't give you nearly as much information. Which is fine, because you need to go out and get that yourself. But the labs are *way* more exciting in the second year. Like the lab procedures in grade eleven, twelve, and first year, it was sort of like you go, "Okay," you know like it's nothing really interesting. Whereas I feel like second year, because you know more, you can use your knowledge; you do a lot more interesting things. And even though you are trying to teach yourself more, you always learn more because it's interesting. So it's easier to learn them and want to learn them more, 'Oh that's why they do that, oh that's why,' you know."

On this particular day, near the end of the semester, Katie comes to the microbiology laboratory together with Marsha to conduct another test for their environment isolate – to observe the motility of the bacteria using the microscope (Fig. 5). Compared to Marsha, Katie appears to be so much more familiar with the use of the equipment. Marsha is asking many questions, about how to use the microscope. They needed to use the 100X lens to see the bacteria and so needed to make sure that they put the bacteria in the middle of vision. It takes some effort and time to adjust the microscope. Yet, Katie manipulates the equipment with great ease. After a while, Katie sees her bacteria quickly moving about. Katie then notes that her unknown bacteria – she has picked the sample from the dust of her picture frame – is "very motile." Katie then brought her results of a series of tests to the instructor (Jeremy) and wanted to find out what her bacteria is. The instructor first guided Katie going online to a website, entered all the results that Katie had into the website, and then the website generated four possible bacteria candidates. Katie then wrote down names of these possible bacteria. One of them is 90 % likely. In this manner, Katie has found and identified the bacteria (i.e., achieve the project of environment isolate). In the case of Marsha, she could not "see" her bacteria properly. One possibility is that she did not use the microscope properly; the other possibility is that her bacteria is not motile at all and so it is more difficult to "see" her bacteria. Both Katie and the instructor tried to help her; but they were not 100 % sure if they "saw" the bacteria either.

Fig. 5 Katie is in the process of preparing an inspection of her bacteria for motility. Here, as throughout the course, she exhibits a great deal of self-confidence in doing what she has to do

Throughout this episode, Katie expresses great confidence in what she is doing. There is no question about the fact that she knows *what* she is doing. The video shows no signs of hesitation here as in other parts of the course. When she has a question, Katie does not hesitate to ask the instructor. That is, over the course of the 4 years that we have observed Katie doing laboratory work, she not only has demonstrated interest but also has continuously expanded her competencies. And with these competencies, she also has expanded the level in which she has control over the laboratory environment. At the same time, this competence coincides with a process of increasing discipline, which is the result of being subjected to the (required) discipline in a laboratory. Following her earlier internship in the university laboratory, Katie pointed out her admiration for Nikki, a highly competent and organized laboratory technician. Now, during her second year in the college, she herself exhibits these competencies – e.g., cleanliness, keeping the workplace aseptic – that she noted in Nikki. Perhaps unsurprisingly, Katie began to consider working as a technician at least for a few years – in case that something goes wrong with her MCAT or the medical school application.

Resident Care Assistant

Katie did not go straight through her premedical science program at the college but actually interrupts her science program and enrolls in a co-op program to be trained as a resident care assistant. The program is intended to prepare its students as frontline care providers in long-term care facilities and a variety of community settings. As the students work through the curriculum and in their

clinical placements, they are anticipated to acquire the skills, knowledge, and values needed to provide professional care to the elderly and other individuals confronting health challenges.

Katie registers in the program even though she wants to be done in her second year and has written the MCAT examination. However, she became aware of the program as a health-care assistant through a fellow student in a psychology class who also signed up for the course. Even though she had not initially planned to enroll in this program and even though it is not something "that she wants to be," it would provide her with an opportunity to interrupt the science program, "work on her own without school, grow up a little bit," and then "return to appreciate school for what it is." Moreover, she described access to medical school as being very competitive. In "trying to be a more organized person," Katie "figured that this would get her into the medical aspect of things." Moreover, she hopes that this course and the experiences that came with it would "look good on her application because she will have had some hands-on experience." Even though she had to pay $2,500 for the course, the fact that she could use the certificate to "get a job anywhere after this" mediated any concerns about the expense.

After completing the program, Katie describes: She "took what she needed from that experience" and now "she wants to get back to what she wants to do." Working as a registered care assistant now provides her with extra money, which she has never had after high school or by working in the lingerie store. Now, throughout her semester breaks and over the weekends, when she has a lot of requests because "people always want their weekends off," she could work because of her status as a "casual." This gave her the flexibility to say "no" when requested to fill in for an attendant who has called in sick. As a job, it is both more flexible than the one she had in the lingerie store, and it provides her with more income ($21 for the day shift instead of $8 as a salesperson).

While working as a registered care assistant, Katie learns a lot as she relates to different members in these settings. As a registered care assistant, she has to "do pretty much the dirty work for the nurses and for the doctors." Many of her peers on the job say that "doctors don't understand what a R-C-A is doing," that it is "a hard job," in which there is "no potential to learn more [because] you are what you are." The other students in the program, who really wanted to be working as attendants suggested, when hearing about her goal to be a doctor, that she will have a better understanding of what attendants really do. Although Katie feels that she is not progressing as a person, she has come to understand that the registered care attendants develop a close relation with the patients in their care on a daily basis, whereas doctors see the patient only "once a month" and do not see what the attendants see every day. But she definitely learns that it is not the kind of job that she would want for the future. Thus, even "showing up every day is a chore, it is not where I want to be."

Much in the way she talks about doing the program to become a registered attendant care worker and her work experience, she talks about the internship as an important learning experience that contributes to her personal development. But it is not something she would "want to do for the rest of my life, just because that's

not what I want to do. But I would definitely work there as a stepping stone you know, like I've just been thinking about that today." Because she needs a backup plan in case she does not immediately get into medical school, she wants to be able to find work. The training as a registered care assistant provides her with options to earn a good living while awaiting further opportunities. Because she does have the laboratory experience together with her undergraduate courses in the sciences, working in a laboratory is something she "would enjoy, like for a couple of years or something." In this situation, too, she undergoes a process of subjectification, which has two sides. On the one hand, she increases her room to maneuver, both instantly, by having a certificate that allows her to make nearly three times as much money than if she was working in as a salesperson. She also hopes to increase the quality of her portfolio that she is planning to submit to the medical schools of her choice. On the other hand, there are hardships that come with working in the particular profession, including being subject to the treatment that resident care assistants get from others working with the patients in their care (nurses, doctors). But all of these emotionally more strenuous aspects deriving from additional coursework and the job site are subordinate to the ultimate, anticipated payoff that she will derive once in medical school and even more so once she will practice as a medical doctor.

Coda

> The more you learn the more you realize the less you know ... I don't know where I am going to be twenty years from now, right, maybe I will be a house painter and maybe I will be happy. (Katie)

In the course of our research, we come to know Katie as a very savvy individual, and she may have realized, in her own terms, what I attempt to make salient in this chapter. As she says in the introductory quotation to this section, she is learning continuously, including how little she knows. As a result, she cannot know where she will be 20 years from now, at which time she might be a house painter and (maybe) happy at it. That is, Katie has learned that through the kinds of relations we have with others and through our participation in various forms of activity with their different object/motives, we change, together with the hierarchy of our priorities: These two changes are mutually constitutive as the personality changes with changes in the hierarchy, and the changes in hierarchies are constitutive of changes in personality. In Katie's case, this is exemplified in a profession that she anticipated not to be particularly interesting jobs. Knowing and relating to people, participating in activities, and realizing different object/motives transforms who we are. "I think these things are just based on my knowledge at that time because I knew people who were house painters, and construction workers, and teacher and I knew people who did these things right and then I mean yeah I am not the one to judge them but that's what I saw I didn't want to." Overall, Katie considers herself lucky to have experienced a developing interest in a particular profession: "I think I was

very lucky because I knew what I want to do and people are like forty-five or forty they still don't know what they wanna do I feel lucky to even have a passion about something so it is nice that I didn't change."

The narratives from her life show that in addition to the processes of subjectification and personality, emotion plays an important role in the hierarchical organization that constitutes personality and its development. The anticipated long-term goal of being a doctor is signed highly positively in terms of the emotional payoff it would yield. This anticipated payoff is so large that Katie engages in activities on shorter terms that are in themselves not or not always rewarding but that bring her closer to the chosen goal. In her case, all of this reinforces at least the topmost aspect of the hierarchy, becoming and being a doctor as the leading object/motive around which everything else in her life is organized.

In the process of living toward achieving the goal, Katie undergoes continuous development within the activities that she chooses or has to engage in. With increasing engagement, she not only becomes a more competent subject – e.g., regarding the technical aspects of laboratory work, as a health-care provider – but also she is subject to and subjected to the particularities of each activity. Each form of participation develops competencies and is formative, thereby closing off, even if momentarily, other opportunities for developing (as) a personality.

The theoretical framework that I offer here has advantages over other frameworks, especially those that emphasize the distinct nature of activities and the boundaries between them. It takes the diversity of everyday life as the fundamental starting point of theorizing knowing, learning, and development. It is because of the diversity of life that we come to observe other diversity issues that are of pertinence to science education. Diversity of life inherently means hybridity, and hybridity can be modeled only through non-self-identity. Such frameworks operate with concepts such as "boundary crossing" and "third spaces" that are used to theorize how individuals cobble together the cultural practices characteristics of their root culture and those of the culture to be learned. From these perspectives, the individual is required to cross boundaries and come to be confronted by different practices, forms of subjectivities, and processes of subjectification. As we see in the case study provided here, the category of personality is an integrative one, as it recognizes the continuity of the individual across the discontinuous forms of subjectivity and subjectification. The framework is integrative because it articulates the object/motives of the different activities in their hierarchical relations within a "knot-work" of activities and corresponding object/motives. To me, this approach is much more consistent with the continuities that we live on a daily matter, where we experience ourselves as a person whether we are subject to a subordinate role at the job, the relative superordinate role in the family, or the differential relations that we entertain as customers, for example, at the bank (e.g., while seeking a loan) or as a buyer especially of a big-ticket item. At the same time, this approach accounts for the diversity of experiences in our everyday lives that derive from the multiplicity of activities we engage in, the related diversity in the (institutional) relations we entertain, and the corresponding forms of subjectivity, knowledge, or competencies and object/motives.

Acknowledgments This research was supported by grants from the Natural Sciences and Engineering Research Council of Canada and from the Social Sciences and Humanities Research Council of Canada. I am grateful to Pei-Ling Hsu, who, supported through these grants, collected the data as part of her dissertation and postdoctoral work in my laboratory. I thank the participants, who have agreed to be part of our research program over such a long period of time.

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