

4 The Shadow Student Learning Ecology

Since the 2000s, Norwegian students and teachers attending high schools have been equipped with laptops with access to the Internet. The laptops are intended to follow the students throughout their studies and are to be used across subjects and study programs. But teachers soon experience that such measures do not meet with the expected outcomes, as they see that students indulge in the social and leisure activities offered by the social media universe. They observe that students groom and game on SNSs or surf the Internet, which happens too often *in* the classroom. Such practices cause commotions and disputes over the intention of having technology condensed learning environments. Teachers respond by arguing that the students' social media activities are distractions, claiming that they result in obstructing the formal learning they are attempting to initiate. This means that student social media uses and literacy practices are evaluated as contradictory with institutional and educational views on technology and learning. And to regain control, many high schools with laptop initiatives attempt to control students' social media use by installing filters on social media and by enforcing local and self-developed policies.

To show the other side of this situation, the chapter uses a bottom-up perspective to describe a case story showing how a group of high school students take the initiative and use social media to organize formal and informal learning activities.⁷ The students in the sample were attending their first or last year in a high school with a laptop initiative, which also had implemented a technical filter preventing the use of Facebook, a high school I call the Alfa Organization. The outcome of the various ways the students use social media to organize formal and informal learning activities emerges holistically into a local form of organizing, resembling an autonomous learning ecology that is an off-limits site for teachers. This local organizing or model I call *the shadow student learning ecology*, illustrating how social media embeds and constitutes into an educational context by actions performed by the dissertation's first actor.. The shadow student learning ecology is my attempt to take a learner's perspective on how students use social media to organize learning activities.

To show this argument, I outline it over the chapter's three parts. The first part relates my model to educational research, which has developed perspectives on students' use of technology and learning. The second part describes the background behind the educational measures of providing students with laptops. The third part explains the Alfa Organization and the students' experiences in using social media and shows how students take initiatives to organize their learning activities. The last part summarizes the chapter.

4.1 Part I: Barron's *learning ecology* and Siemens's *connectivism*

To frame *the shadow student learning ecology*, I look to recent theoretical streams in educational research for analytical inspiration, work that has explored perspectives on students' use of technology and learning.⁸ I take interest in parts of Barron's (2006) *learning ecology perspective* and aspects discussed in Siemens's (2005) new learning theory, *connectivism*.

⁷ By *formal learning* I mean to what extent a goal-driven learning activity is initiated by an educational authority, while *informal learning* is a goal-driven learning activity initiated by the learner him- or herself.

⁸ This chapter's research perspective is explained in Chapter 3. The chapter expands and combines analysis I have performed in other published work (Haugsbakken, 2014a; 2014b; 2014c).

Over the years, Barron (2006) has conducted research showing that students take the initiative to pursue learning opportunities, reflecting aspects of interest and self-sustained learning. Barron's work demonstrates that learning occurs over distributed and multiple settings and by using many types of resources, both in and out of school, which students use to develop their fluency in technology (Barron, 2004; Barron, Martin, & Roberts, 2006). Such insights lead Barron to call for a new research agenda where the aim is to challenge school-centered notions of learning. Educational researchers tend to have a limited time frame and often use the classroom as research site to understand learning, according to Barron. This represents a narrow perspective and sees learning as isolated incidents, resulting in cutting off larger *contexts* that might play a role in a knowledge production process, for example, learning can link to interdependent activities being embedded in different contexts. And by clinging to it, one can miss important aspects that might play a part in a learner's life. Therefore, Barron calls for up-scaling current measurement parameters and develops a learning ecology perspective, which is to embrace a more holistic framework to understand learning.

Barron defines learning ecology as: "the set of contexts found in physical or virtual spaces that provide opportunities for learning" (Barron, 2006:195). Barron finds additional inspiration in a learning ecology framework (Bronfenbrenner, 1979; Cole, 1996; Lerner, 1991; Lewin & Cartwright, 1951; Rogoff, 2003) and combines that with sociocultural, activity (Cole, 1996; Engeström, 1987; Greeno, 1998; Rogoff, 2003; Vygotskij, 1978) and situative learning theories (Lave & Wenger, 1991). A learning ecology framework argues that learning can be shaped by the result of micro-interactional processes across short time frames within contexts and across settings, while sociocultural, activity and situative learning theories put focus on how learning can arise from micro-interactional processes in distinct communities and be linked to individual processes. These perspectives can be applied to understand how adolescents pursue and organize self-initiated learning activities. Furthermore, they give insights into the interdependent contexts where this occurs, thereby giving a *holistic* view of learning. But to take that path has implications, as it would challenge the instituted boundary between learning *in* and *out* of school, meaning that students' learning activities outside school contexts would have to be given acceptance. Barron emphasizes that researchers have wide knowledge on how students learn outside school, but it is unclear how they "migrate" between self-initiated learning activities embedded in different contexts and how this shapes their interaction in them. This factor requires the development of a framework that can lead to understanding on how learning outside school relates to learning within school and how learning in school can lead to learning activities outside school. Barron suggests following how a learner will make use of and combine multiple contexts and resources to pursue learning activities. The research objective is then to see how a learner uses the "flow" running between the varieties of contexts in which he or she interacts. Moreover, it must be recognized that a learner's interaction will take place over a longer time frame.

The analytical key linking and leading to a holistic view is to *cross the boundaries* separating the interdependent contexts where students create learning opportunities. Furthermore, it is important to consider the *mise-en-scène* of the dynamics that embody them. This involves accepting a number of features, according to Barron (2006): that adolescents are simultaneously involved in many settings; that they are active in creating contexts for themselves within and across settings; that learning processes involve the creation of activity contexts in a new setting or the pursuit of learning is found outside the primary learning setting. One should recognize that a variety of informal or out-of-school learning literacies, practices, and forms of knowledge are developed and employed; that boundaries between potential learning contexts are permeable and overlapping and that one actively uses them; and that learning can be intertwined with processes of identity construction and be part of remote learning events.

Barron's next step is to identify students' self-initiated knowledge building strategies and the ways they create learning situations. Barron suggests three conjectures to capture these. The first step consists of focusing on how "within any life space, a variety of ideational resources can spark and sustain interest in learning" (2006:200). Barron pinpoints the usefulness of portraying the "pathways of participation and to provide an account of the kinds of events, activities and processes that spark interest in learning" (ibid.). The second step proposes that "people not only choose but also develop and create learning opportunities for themselves once they are interested, assuming they have time, freedom and resources to learn" (ibid.). Barron stresses the importance of mapping the variety of informal learning strategies, which a learner adopts into his or her knowledge production process. The third step is framing "interested-driven learning activities [that] are boundary-crossing and self-sustaining" (ibid.:201). This implies a researcher should have a long-term approach and realize that learning activities transcend settings and are developed and formed in various contexts. For example, it would be important to chart how a learner first develops an interest for a topic in school and how it is pursued in other contexts. The objective is to outline changes in a person's learning ecology. The combination of this means recognizing the environment in which a learner interacts and that he or she can equally grow from it. Barron illustrates her perspective by synthesizing three different personal case stories on how students pursue and create personal learning strategies. Their common denominator is three different paths for developing pursuits of learning outside school. To learn using a technology, students pick their interest by either starting in the home sphere or in a school context and draw on various resources to harness it further. Barron identifies various knowledge acquisition strategies students employ, like finding text-based information, creating web sites, exploring various media, finding means to have structure learning, and building personal learning networks.

Siemens (2005) introduced a new learning theory for the digital age, *connectivism*. Siemens defines connectivism as "the integration of principles explored by chaos, network, and complexity and self-organization theories" (2005). Connectivism is an alternative to established learning theories like behaviorism, cognitivism, and constructivism. Connectivism is an attempt to develop a learning theory that embeds learning and knowledge production with network theory fitted for the network society. New conditions require new learning theory, as it puts more focus on the limitations in established theories and changes in conditions for how students learn and educators work. Siemens's main claim rests on challenging how earlier models rested on the assumption that learning took place *in the individual*, a factor preventing one from seeing how learning happens outside people's domains. This entailed that external conditions in society and information stored in technology are overlooked in the learning process, a factor that can lead to prevent teaching students the capacity to evaluate the quality of information. Connectivism attempts to stress that learning and a shifting and complex environment beyond the individual's domain is important mastering. When the learner and educator interact in a network society where information is abundant and changing, this requires adjustments in how learning is recognized. The learning process needs now to focus on "connecting specialized information sets, and the connections that enable us to learn more are more important than our current state of knowing" (ibid.). In essence, connectivism states that learning occurs when learners are able to "form connections between sources of information, and thereby create useful information patterns" (ibid.) and to evaluate them critically.

Two aspects in Siemens' work are of particular interest to me: *learning as connections of nodes* and *self-organization*. "Learning as connections of nodes" implies that learning happens when a learner manages making pre-established connections when *nodes* are activated in a network, regardless if this involves sending, receiving or forwarding of information. As Downes puts it: "to 'know' something is to be organized in a certain way, to exhibit patterns of connectivity.

To ‘learn’ is to acquire certain patterns/” (2006). A node can be defined as a knot or a point of interaction. Siemens (2005) theorizes that identifying and managing the links between nodes, eventually what they mean and how they can be used to create something, is important to master in learning processes. This is important when the premise for which the context the learner interacts in is now complex and chaotic. Such appears having reversed the conditions from which information is to be retrieved and changed into knowledge. As it is now ongoing, distributed and abundant, this requires one to critically find nodes and connect and make sense of them. The flipside to this is that the learner’s capacity to be self-organized is vital to the learning process. Siemens defines self-organization as “the capacity to form connections between sources of information, and thereby create useful information patterns” from random initial conditions (2005). This means that it is not simply enough to demonstrate the ability to link nodes, but also that a learner and educator have to enact them as well. Self-organization is imperative as nodes can take on a variety of literacies, but also that one has to account for aspects like curiosity, creativity and randomness, and connections, which are imperative to explain aspects of social media use among students.

In sum, to “import” aspects from Barron’s and Siemens’s theorizing into the local model, the shadow student learning ecology concerns to develop and embrace a holistic perspective on formal and informal learning, which is based on premises that students create from the social interaction transpiring from situations in which they are involved. Moreover, this contends with recognizing that students can create and pursue learning activities across changing interdependent contexts and perform various knowledge acquisition strategies and connect and make sense of pieces of information to form knowledge. An important aspect is to investigate what “happens” in the autonomous space, off-limits for teachers, the students have created when they organize formal and informal learning by use of social media. Do they create learning situations where they willingly engage in new social media contexts to find new information or resources or do they remain in the situations where they are? Do students cross contextual *boundaries* to create learning opportunities, like harvesting knowledge and resources from a school context and then move further to learn more about something in the home sphere and vice versa? Or do they settle for developing and performing knowledge strategies in a single context? Another aspect concerns understanding to what extent students are self-organized and are able to relate to established and new connections to perform knowledge acquisition strategies. These aspects are explored in the forthcoming subsection.

4.2 Part II: The laptop initiative

Since the 2000s, Norwegian County Authorities (CAs), which are responsible for high schools and are responsible for administering and implementing educational policies regionally, have introduced laptops to students and teachers and installed wireless networks in their high schools. This has happened on an institutional scale across the country. The aim is to achieve full PC coverage. The laptops initiative often has a top-down framing and is imposed on students and teachers. This has meant that many high schools have changed into technology condensed organizations, implying similarity with any other organizations using ICT as part of their working day. There are overlapping reasons for the laptop initiative. Some form part of local discourses on developing public organizations, while others are required to be implemented, as they are “pushed down” in the hierarchy from national authorities. They are part of combined educational goals, like promoting equality in education, preventing digital divides, enhancing digital competences, and securing that the digital development in society at large is reflected in the K-12 system. The goals can be seen as the fulfillment of intentions set in the recent national education reform of the Norwegian K-12 education system.

There are variations in how the CAs organize the implementation of the laptop initiative. This is influenced by the degree of local autonomy they possess. The laptop initiative is legitimized by decisions approved in the CA's political body, the County Council. One of its greatest consequences is that the CAs have become "industrial consumers" of laptops, tablets and computer hardware. They have signed contracts with retailers after public procurements involving large investments of millions of kroner. The CAs' IT departments often take on the role of chief internal coordinator and cooperate with the high schools to implement the laptop initiative. A recurring theme is the *gradual* deployment of laptops, meaning that some high schools have been part of a separate pilot before the remaining schools are included. Some have been "test schools" and used laptops for a year or so. In other cases, there might only be one or two classes in a study program at a high school that have laptops. But the most common situation is that when students arrive on their first day at high school, they are provided with laptops that are intended to follow them throughout their education. One can also observe that the laptops initiative has an impact on the high schools themselves. The high schools have new IT infrastructure, involving the creation of new responsibilities, routines, and positions. Previously it was common that scant resources were allocated to administer computers. This has been reversed. The high schools have local IT departments with technicians who look after the computer network, oversee technical maintenance, install updates, and carry out administrative tasks, etc.

There are differences in the practical arrangements as to how students are equipped with laptops. This has been enabled by economic arrangements like deductibles, stipends, loans, leasing agreements, etc. Students pay a standardized fee, which is later reimbursed. And when they finish their education, they can choose to return their laptop or buy it. This arrangement implies that the initiative has structural and top-down orientated guidelines, forming a control regime for the use of computers. These are epitomized in a body of rules and licenses, which users are required to follow and accept when they acquire their laptop. The CAs buy standardized education licenses from software suppliers for operating systems and office suite software, for example, which only can be activated by license codes given to the students. The CAs introduce a range of documents that specify rights and duties on both parties. The CA gives the right to students to use its computer networks and to receive software updates. Students are required to sign an agreement, which often states that the laptop is the legal property of the CA. The CAs appear to vary on the extent to which they allow students to use private laptops on their computer networks. Students are required to familiarize themselves with a particular CA-designed ICT protocol, which can serve to sanction illicit activities. This has to be signed by the student and one of their parents, if the student is under 18 years old. It is common for CAs to impose their own intention for use, which is often prone to stressing that laptops are to be used to promote good teamwork, order, and work habits. They also state that they should contribute to a stable and secure operating environment and encourage a good learning and working environment for the students. Besides this, the CAs test tablets, either in selected classes or sometimes as entire schools. This is not part of the laptop initiative, but is realized as a series of separate ongoing R&D projects. Here, the intention is to investigate whether tablets can improve learning, enhance student motivation, and create an interesting school day, which can help to design better future digital classrooms. The CAs often collaborate with researchers to establish the effects of such R&D work.

The laptop initiative has conflicting effects, evoking powerful discourses on the complex relationships between technology and learning in education. This deals foremost with challenging established beliefs, logics, educational practices, and institutional control regimes, but also disputing expectations on technology's potential limitations or possibilities on learning. The laptop initiative is not exempt from public debate and creates polarized views. There are

often divides between so-called technology “enthusiasts” and “skeptics” who criticize each others’ views. Educational authors have criticized the initiative as misplaced, claiming that it does not represent the best way to educate adolescents to become independent thinkers. Within the education system, many “best practice conferences” have been organized throughout the country, where successful teachers and high schools have been celebrated as symbols on how to work digitally. Top public administration officials argue that teachers need to embrace the digital era, while the teachers remain skeptical. But the thorniest issue, raising much concern, is how the laptop initiative has given students direct access to the Internet. This is observable in classrooms, causing accusations of obstruction of learning. After the steep take-off curve of social media in the 2000s, young people’s social and leisure activities have been brought closer to the high school. This is epitomized in the image of students glued to their laptops, which has spurred stories on personal frustration. Teachers contend for an imbalance in the learning situation and are fast ‘to recall their experiences’. Classrooms full of laptops turn the students’ attention *away* from what happens *in front of the class* to what happens *in front of the screen*. Teachers have experienced feeling powerless, as they observe that students *game* and *socialize* on Facebook rather than paying attention to what they say to them. To regain control, teachers have petitioned about their vexation to school managers, who in turn have accepted and implemented social or technical sanctions. The most common means is to install filters so that social media applications cannot be accessed from the school’s computer network. Other schools go further. At certain high schools, having first introduced laptops, they have later locked them away and returned to using textbooks. Despite this, the enforcement of bans on social media is futile. Students bypass constraints by using the strengths in the hardware and the software with which the authorities have flooded their schools. They use other Web 2.0 applications, install temporary proxies, or use other computer networks and their cell phones, which allow students to continue communicating. In most cases, however, the students do respect and understand bans.

There is great uncertainty as to the consequences of the laptop initiative for learning and student performance. National press coverage reports different experiences. There are high schools that have successfully adapted to the new situation and organize pedagogical practices around laptops to meet the expectations of the digital age. We find cases of motivated teachers and students who find the new technology useful. On the other hand, many stories tell about aborted pilot projects. Teachers and students report that they spend more time on learning how to operate tablets than focusing on the subject they are set to study. This means that the actual learning process is more about learning to use a technology than using the technology to facilitate better learning.

Research is a scarce commodity and we are forced look beyond Norway to other Scandinavian countries for evidence. Here, research has shown that Danish students’ use of tablets can create negative effects on learning (DR, 2013). In the Norwegian context, our current research horizon is limited to a growing number of case studies, which have explored the relationships between laptops, iPad and social media from teacher and student perspectives. This is reflected in a growing body of master’s degree theses that have explored specific themes. These studies have discussed social media’s potential theoretical implications for pedagogical and didactic practices and its challenges for digital competences (Eide & Weltzien, 2013; Lykkenborg, 2010; Moe, 2011; Ottesen, 2014), the concrete strategies students use to manage their online identity on Facebook (Ruud, 2011), how social media can be integrated into students’ studies (Haga, 2013), and how students use social media as a mean to escape the education system’s academic culture (Meijers, 2013). Besides this research, the Monitor surveys of the K-12 system (Hatlevik, Egeberg, Guðmundsdóttir, Loftsgarden, & Loi, 2013) give a more cohesive picture of students’ use of social media, which is concluded to belong to the leisure sphere. The latest

Monitor survey from 2013 finds that few students use social media for formal learning; only 7 to 10 percent are said to use Facebook to organize formal schoolwork. But the interesting research question worth documenting is to find out what is really going on *in* the classroom. For example, what are the students doing behind their laptops when their teacher presents new learning material?; a situation many talk about but have not been privy to observe first-hand from a research perspective. In this regard, Blikstad-Balas' study is pioneering. She monitored how a class of students used their laptops during a teacher presentation, at a high school in Oslo. Her conclusions are not promising:

The respondents all explicitly state that they do not pay attention to most of these presentations, sometimes they do not even try to. They all have their computers on during most of the presentations, and they actively go online and search for other texts on a regular basis. The recordings show that this is not the case only for the four respondents chosen to record their own activities, but for the class as a whole. (Blikstad-Balas, 2012:90-91).

Other studies report the same tendencies as Blikstad-Balas (Lindroth, 2012; Skaar, 2011).

4.3 Part III: The shadow student learning ecology “in action”

4.3.1 The Alfa Organization or high school

The Alfa Organization or high school is located in a suburb of a city in Norway. Approximately 1300 students attend the school and it has 200 teachers. Students are recruited from the surrounding suburbs and from more distant municipalities. The high school has vocational and general study programs and offers eight different study programs. In vocational studies, students can choose between service industry, technique and industrial production, media, design, and construction. Vocational training follows a “2+2” education model. Students spend their first two years in school acquiring introductory knowledge, followed by two years in apprenticeship training. The high school has three academic programs, general studies, dance, music and theater, and sports. This follows a three-year education loop preparing for university studies. Student demographics show even distribution among the sexes. The choice of study programs is gendered. In construction, for example, a male dominated profession, one can find classes only consisting of males, but in academic studies there is an even gender distribution.

Since 2010, the high school has been part of a laptop initiative which includes all the high schools in the county where the Alfa Organization is geographically located. The laptop initiative requires that all students and teachers have a laptop each and are connected to the Internet. The laptops are provided by the CA and are part of the high school's priority area, digital literacy. The high school has become a rather large IT organization with many laptops and wi-fi transmitters, a technology infrastructure that has to be maintained by a local IT department. The IT department controls and has the operating responsibilities for more than 1500 individual user accounts and laptops. The IT department employs three full-time technicians and student apprentices studying the technical side of ICT. The IT department has expanded its activities in recent years. The IT staff carries out the daily maintenance of the high school's computer network, attempts to keep up to date on new regulations and recent software and hardware, registers defective laptops, etc. But this work has changed too. The technicians are less involved in technical ICT work, but work more with administrating and reporting to officials. The IT department can shut down the local IT network when required. There is currently a filter on Facebook, which was installed in 2011. This came at the request of teachers, who experienced that students socialized on Facebook rather than paying attention to classroom

activities. The teachers are divided on the Facebook filter. The IT department gets requests from teachers to reopen access to Facebook, but has not yet complied with it.

4.3.2 The social media behavior of the students

The students who participated in the shadow student learning ecology are listed in Table 4.1. The students were recruited from two classes during the school year 2011/12, mainly from two classes of the teacher that will be discussed in the next chapter. The data sample consists of 26 students: 17 males and 9 females. Informants 1 to 11 attended a vocational study program in construction and were studying to become carpenters. They followed the 2+2 education model and were finishing off their last year in the introductory knowledge training course and waiting to begin their apprenticeship training in a company. They were 17 to 18 years old. Informants 12 to 26 attended the general/academic study program, which lasts three years. They had just started their high school education and came directly from the junior high school system. They were 16 years old and intended to enter university or college at the completion of their high school studies.

Table 4.1. Data sample of students and their use of social media applications.

Informant no.	Gender	Age	Study program	Subject	Level in school	Approx. Facebook Friends	Member school FB-group	Active bloggers	Skype to share school work	Use YouTube Videos	Google Docs
1.	M	17	Vocational	English	2 nd year	900	-	-	Y	Y	-
2.	M	17	Vocational	English	2 nd year	600	-	-	Y	Y	-
3.	M	17	Vocational	English	2 nd year	350	-	-	-	-	-
4.	M	17	Vocational	English	2 nd year	50	-	-	-	-	-
5.	M	17	Vocational	English	2 nd year	-	-	-	-	-	-
6.	M	17	Vocational	English	2 nd year	800	-	-	-	Y	-
7.	M	17	Vocational	English	2 nd year	-	-	-	-	-	-
8.	M	17	Vocational	English	2 nd year	-	-	-	-	-	-
9.	M	17	Vocational	English	2 nd year	400	-	-	-	-	-
10.	M	17	Vocational	English	2 nd year	-	-	-	-	-	-
11.	M	17	Vocational	English	2 nd year	300	-	-	-	Y	-
12.	M	16	General	Spanish	1 st year	600	-	-	Y	Y	-
13.	M	16	General	Spanish	1 st year	700	-	-	Y	-	-
14.	M	16	General	Spanish	1 st year	-	-	-	Y	-	-
15.	F	16	General	Spanish	1 st year	1000	Y	Y	-	Y	Y
16.	F	16	General	Spanish	1 st year	300	Y	Y	-	Y	Y
17.	F	16	General	Spanish	1 st year	700	-	-	-	-	-
18.	F	16	General	Spanish	1 st year	400	-	-	-	-	-
19.	F	16	General	Spanish	1 st year	800	-	-	-	-	-
20.	F	16	General	Spanish	1 st year	1000	-	-	-	-	-
21.	M	16	General	Spanish	1 st year	700	Y	-	-	-	-
22.	M	16	General	Spanish	1 st year	-	-	-	-	-	-
23.	M	16	General	Spanish	1 st year	200	Y	-	-	-	-
24.	F	16	General	Spanish	1 st year	200	Y	-	-	Y	-
25.	F	16	General	Spanish	1 st year	200	Y	-	-	Y	-
26.	F	16	General	Spanish	1 st year	300	Y	Y	-	-	-

The students had personal strategies on how they presented and managed their online selves. Many students appeared to be digitally present and passive observers of social media's participatory web culture. They presented themselves as *passive Web 1.0* than rather *active Web 2.0 users*. They had a more "read-only" than "read-and-write" approach to social media, implying little evidence of prosumer activities. But their social media user behavior showed traits of complexity and performance of strict personal policies on self-censorship. The students were cautious in how they interacted and connected with new people. This often led to a dual communication practices. On the one hand, they preferred to communicate in private digital spaces with strong ties from the off-line world by use of chat software, while on the other hand they passively monitored the larger public dialogue in their social streams. Besides that, it appeared *not* to be common for them to connect with new online ties, implying that they would normally communicate and connect with trusted and close friends they knew from the off-line world. User privacy was a cherished value and to publish online content randomly was a great threshold. They did not regularly share or create online content. The students were conscious that an ambiguous audience could potentially exploit them. They were mindful and aware of cyber-bulling, implying that creation of online content was associated with risk, although many did not mind that their names could be googled or were searchable on various search engines. The students exercised rigorous ideas on what type of content they could publish. This also applied to students who were not regular contributors of content. Few students were active web content creators; the majority of the students mainly traversed web pages to retrieve information rather than actively producing it. Only four of the 26 students had regularly published any form of web content. Three girls had a blog and blogged regularly. One male student had published YouTube videos. Regardless of such user patterns, many students combined social media practice with e-mail and SMS and reading of online newspapers on a daily basis. The voice-over-IP service Skype was popular, meaning that chat software was surprisingly one of the main ways of communicating with people among the students.

Addressing the students' social media behavior more specifically, the students interacted on four types of platform. The students divided their online time between; (1) SNSs, (2) video-sharing communities, (3) online gaming communities, and (4) blogs. Facebook had started to play a centering, connecting, and organizing role on top of other social media platforms, acting as a type of "road" or "main social media node" linking their user behavior to other Internet sites and web practices. All the students had a user profile on Facebook and had used it since 2008. Facebook was used for online socializing and belonged to the leisure sphere. The students reported checking their Facebook user profiles every day. The students used Facebook to stay in contact with friends and family and to stay updated on what their closest friends were doing. It was common for a student to have around 300 online connections, but some could have as many as 1000. It was also common to belong to Facebook groups. But the students reported contradictory user habits. They had now started approaching Facebook from a "lurker" user type position, meaning that they were passive consumers and seldom contributed to any online dialogues by sharing of online items. They frequently communicated one-to-one in private chat channels, while they silently glanced at what others might share. But the development of this personal self-censorship appeared to be the outcome of a retrospective online socialization process. Long-term use reflected a recurring user pattern. For example, when they first started using Facebook, they engaged *deeply*, but later took a *shallow* position. This appeared to be creating normative strategies for user engagement, rendering a more critical user community belief of what ideal Facebook might be. This was reflected in distinct ideas for "correct" online participation.

A “teen Facebook etiquette” has emerged, exposing a declining popularity of Facebook among adolescents. First, Facebook was seen as “dull” and a “waste of time”. The students were disenchanted with Facebook because they perceived that “nothing happens there”, classifying the SNS as “uninteresting” and “irrelevant”. This meant that few students admitted to posting digital items to create online interactivity. The students appeared to be quitting and fleeing Facebook in favor of the microblogging service Twitter. Second, many user stories showed another recurring user pattern, illustrating personal decisions to disengage from an online community. This shows a change from being an engaged to a disengaged user, which is characterized by the students ceasing to perform central Facebook practices. These made little sense to carry out and followed a distinct pattern. When the students first registered, they wrote many status updates but later that tailed off. After a while, they would only click “like” on status updates, but later they would also stop “liking” status updates, a practice ultimately leading to only being present just to look at pictures emerging from their Facebook feed. Third, this user experience involved not a complete halt in communicating with their online connections, but simply a personal transference of their communicative practices to chat channels, where they continued to interact with their friends. Fourth, informants stopped building and expanding their Facebook networks. It was rather rare to encounter students who added new connections. They were finished “faceworking” and had met a network’s “saturation point”. In contrast, when they received a friend request, they would treat it with skepticism and run “social background checks” to find out who it was and how they were related, meaning a strong degree of selection as to whom they included in and excluded from their networks. Fifth, there were several cases that illustrated that the students had now started critically questioning the value of having large online networks. They realized that they did not relate to so many people in their offline world. Consequently, the students started to decrease the number of online connections or to “unfriend” connections. A female student told me that she had reduced her Facebook network from 1000 to 300 connections. Sixth, we find the development of an odd attitude, a form of “teenage anxiety mind-set”, illustrating the social and emotional complexities in bonding and bridging strategies in social networks when humans decide to relate to each other. This reflects a perception on attitudes towards how youth choose to perform connecting strategies with weak or strong ties belonging to their own social group. Moreover, it reflects how youth evaluate the distance from ties, which others see to be part of their own social group. This is conveyed through a belief, showing how students can choose to *know of new ties*, but not *want to confirm their relationship with them*. This “teenage anxiety mind-set” acted as a justification for not engaging with new people as part of their social group. This surfaced especially when students observed that younger teenagers, “newcomers” on Facebook, attempted to include them in their online networks. The students would not favor engaging with them because of the personal intimacy and content of their status updates. Instead, this would act as a justification to leave Facebook and head toward Twitter, which was their new online playground.

The students used and engaged in various Facebook groups. They interacted mostly on closed and private Facebook groups with other users who shared the same hobbies. Many students reported that they wrote status updates, liked and commented there. The Facebook groups were used to organize and coordinate the students’ social lives. In the midst of all this, we find the emergence of a new social media practice. This shows how adolescents take the initiative to organize and embed Facebook groups into their private social lives, using Facebook groups to organize illegal taxicab operations at weekends, a social media practice that has received much public attention. Taking official taxis that charge regular fares is considered expensive, leading young adults to look for cheaper and unregulated alternatives to get home after partying on weekends. Facebook groups have started to work as a type of “unofficial” unregulated taxi call center, where contact information on potential drivers, fares, and trips is exchanged and

organized. Certain Facebook “taxi” groups have as many as 2000 members and are based in the same geographic area where the members live. News stories claim that a driver can earn 5000 kroner for a night’s work. I interviewed two male students who have engaged in this practice:

- I-2: Among my buddies, it’s a lot about football.
- I-1: A lot of football, a lot of drinking, potential parties, drivers. Very much drivers. Many updates say you can call this or that number, if you need to driver at the end of the night.
- R: Are they paid to be drivers?
- I-1: Most of them charge you. This may be 200 kroner, for example, to drive someone here and there. When I get my driver’s license, I’ll be sure to write that I can drive an evening, for example, if I’m not drinking myself, though. I’m going to write that I can drive. I might perhaps charge about 50 kroner per person. I will drive them wherever they need to go.
- R: Who do you drive?
- I-1: Friends on Facebook, for example. I post my number, and anyone can call me.
- I-2: All my friends see that it’s posted there. If they are in a place and can’t get home, they just call you and ask if you can drive them home.
- I-1: For example, and if there is anyone who knows it, among those I know on Facebook, who know that I can drive, and they go to a party and I meet other many people there, who I don’t know, they can tell them that I drive. This might give many trips.
- R: It’s a sub business that has emerged?
- I-1: Yes. It has started to compete with the general taxi business, I think. Taking a taxi is the last resort, if you can’t find a driver.
- I-2: You call through your Facebook contact list before calling for a taxi.
- I-1: I would rather walk home than taking a taxi.
- I-2: If I’m at a party somewhere, and can’t reach a driver, I just walk home. I’m not calling for a taxi.

The students interacted on other social media platforms, foremost YouTube, blogs and gaming sites, where the two latter were ascribed strong gendered values and represented a type of digital “off-limits space” for the opposite sex. Blogging was an exclusively female domain. Many male students claimed that they had never read a single blog in their entire life, as it was categorized as a “girl thing”. “Blogs are for girls”, as an informant promptly stated it in an interview. If the male students had ever visited a blog, they merely looked at the pictures. This gendered youth divide included the particular Norwegian mediated social practice or phenomenon of *rosalbloggere* (pink bloggers), who over the years have emerged to become public figures or celebrities. Unclear of its cultural nature, it can be understood as an individualized young adult consumer culture lifestyle, dedicated to experimentation on feminine social identity practices, like contemporary fashion and cosmetics. Central to this practice is how young females blog about their everyday lives, emotions, love-lives, and social matters and endorse commercial products, acting as controversial role models. This online social identity has risen to become a symbolic representation of a successful adolescent, although heavily criticized for monetizing and use of female sexuality to gain public recognition. Pink blogging is connected to the web site blogg.no, which many of my female informants stated they read on a daily basis. The female students approached blogging from a consumer perspective. They read blogs by female bloggers whom they admired, but did not engage in the blogosphere as prosumers. Only three female students had their own blogs, where they blogged about their lives or posted pictures.

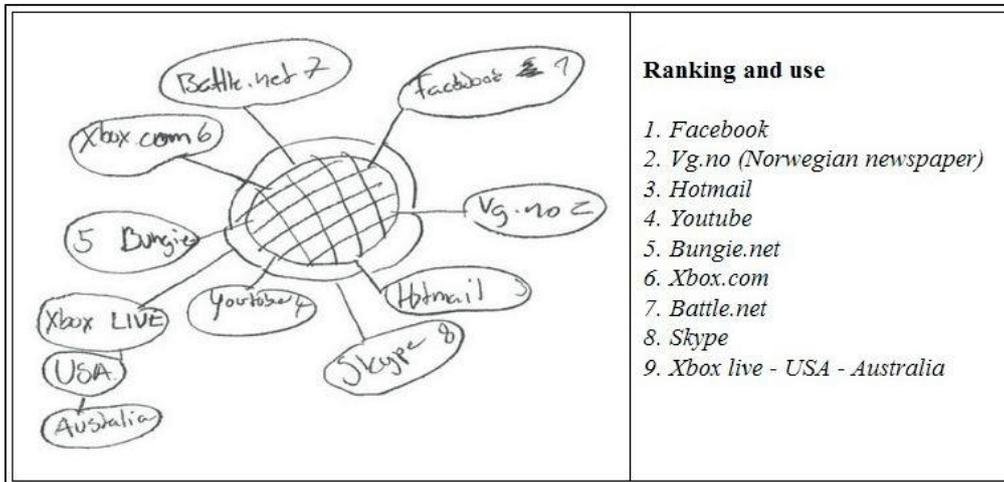
Online gaming was in stark contrast to blogging, representing a digital domain for young males. Some female students had tried gaming, but did not engage with it. The male students explained that they had gamed for years, portraying it as an important leisure practice. Gaming is a longstanding consumption activity, which could last for hours. It was a typical weekend hobby. Many male students congregated and played first-person or third-person shooter computer/video games like *Call of Duty* or *Counter Strike*. Some males were reluctant to talk about the number of hours they spent in front of a PC or videogame machine. Many male students stated they had started cutting down on gaming, as they began to see it as “dull”; and, if, a male student still spent many hours on gaming, he was now somehow considered as rather immature and needing to get a better social life.

YouTube was a favorite with both sexes, portrayed as a “neutral gendered” web space. YouTube was used for different purposes; for downloading music, just watching small video clips, and for informal learning. The students used YouTube videos to learn to play musical instruments or video games.

4.3.3 Organizing formal and informal learning

My outline of the students’ general use of social media raises questions on *how* and the particular *ways* or strategies the students use to organize and coordinate their online socializing and leisure activities. Moreover, it breeds questions on how students perform knowledge building strategies and the ways they create learning situations from use of different social media platforms. The data analysis so far shows degrees of great user complexities. We have learned that there are differences and variations in how students interact and engage in the social media universe, as illustrated in Figure 4.1. Figure 4.1 shows a self-ascribed graphic “mental node” created by a male student attending vocational studies. This can be used as a measure to frame *what* and *which* sites they normally interact on by personal ranking and keywords, a visual or graphical technique to capture a person’s Internet user behavior. Figure 4.1 indicates that the male student visits 3 to 10 sites every day, a holistic reflection on how students engage and organize their user behavior. Other mental nodes show that students combine their personal use between social media platforms with web sites under editorial control. They largely use Facebook and YouTube, but include web sites and different chat software. Many students report being *passive* or *present* and only a few engage in the social media’s participatory culture and create user-generated content. They are prone to traverse and participate *within* and *across* different social media platforms and combine that with visiting a couple of web sites, for example, rather than remaining loyal to one or two social media applications, reflecting how students strategically choose to engage on social media. This entails that students engaged across distributed and multiple settings and used many types of web resources, echoing the need for an ecology perspective.

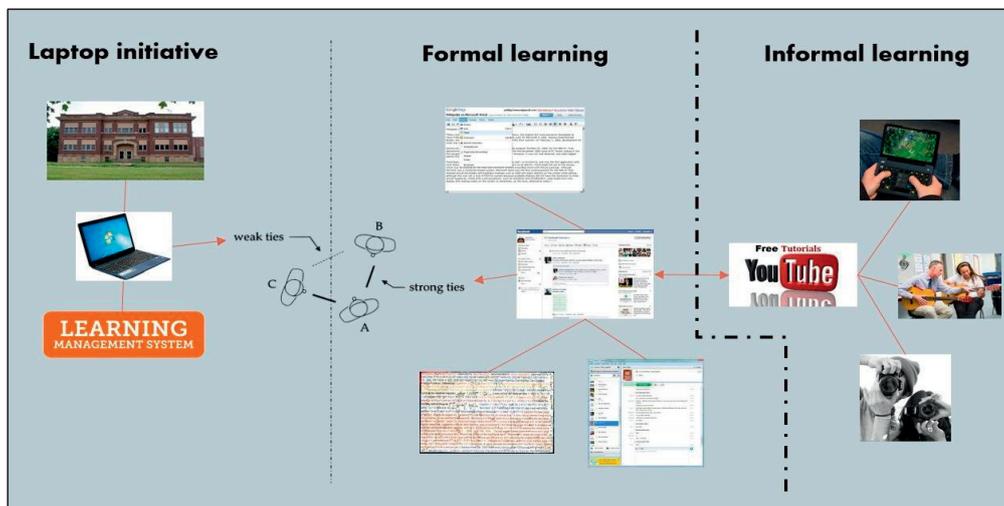
Figure 4.1 Mental node of a student from data sample.



I emphasize this point, as it has a bearing on conceptualizing how the shadow student learning ecology “works”. Instead of tracking individual user patterns connected to a single and *isolated* social media platform and see what happens there, it makes more sense to frame it another way. One must map how students use a variety of social media platforms and how they choose to engage in their embedded contexts. Moreover, we must chart if they manage to cross the instituted boundaries separating *interdependent contexts* and use and combine the resources that follow with them to organize learning activities. This aspect plays an important role in conceptualizing the holistic view on how the students pursue and organize self-initiated learning activities.

Figure 4.2 is my attempt to show a bottom-up perspective of the shadow student learning ecology. Its properties can be conceived when we see it in relation to how it contradicts institutional views and initiatives on learning and technology. The high school has equipped its students with laptops with access to the Internet and installed a technical filter on Facebook. But when the high school’s students start organizing formal and informal learning activities and create an autonomous sphere, the contours of their social media actions give the shadow student learning ecology a shape and tentative “social life”. It can temporally manifest in an organizational context at the blurred boundaries of the Alfa Organization, in its “shadows”. Facebook has a centering organizing role as the main digital resource students use to organize learning activities, which they use for constructive and non-constructive purposes. For example, 7 of the 26 students in the data sample reported using Facebook to do their studies. This trait amplifies the importance of digging deeper into how students use different social media platforms. We need to contextualize how they perform personal knowledge building strategies and why they decide to engage or remain passive. We need to emphasize how they evaluate their own uses of different social media services, furthermore, how their uses are connected to activities and the different web platforms they participate in and traverse.

Figure 4.2 Visualization of the shadow student learning ecology.



To give a picture of how the shadow student learning ecology “works”, the remaining part of the chapter is divided into two parts. The first part portrays how the students use social media to organize formal learning activities, while the second part shows the ways they organize informal learning. Each part describes how the students carry out a variety of personal knowledge building strategies.

1. Organizing of formal learning activities

The following data analysis builds on the user experiences of 12 students: seven males and five females. These are informants 1, 2, 12, 13, 14, 15, 16, 21, 23, 24, 25 and 26. Based on their user experiences, I have coded their answers into five themes.⁹ Each theme outlines how they evaluate and choose to share and organize the schoolwork given by their teachers. The first theme explores how they evaluate their online connections, reflecting a trait often seen in selection or connecting processes on SNSs. The second shows how they establish and use Facebook groups and label them as “class bulletin boards”. The third theme shows how students produce learning tools and how they decide not to share with fellow students. The fourth theme scrutinizes how students use Skype as a way to con their homework. The fifth theme tells the story of how students create Facebook groups and use them as discussion forums to complete larger project work, and moreover, how they combine their reflective experience from online discussions to co-author their submissions in Google Docs.

The careful selection of ties

The first theme characterizing the shadow student learning ecology concerns ideas and practices related to social selection and connecting strategies of connections in SNSs. How the students choose connections has implications for access to potential digital resources. Rigid inclusion and exclusion of connections into SNS and its diffuse overlap between the on-line and off-line world was a factor among the students. It suggests working as a significant precondition for participating as well as creating multiple types of digital divides between the students. These digital divides followed the lines of demographic variables like age, gender, and study program.

⁹ The way I coded the material is outlined in sub-section 2.4 in Chapter 2.

The students in vocational studies took on a rather “traditionalist role” towards using social media to organize schoolwork. The majority did not share any type of assignments with their fellow students, resulting in low prospects for cooperation. Only two male vocational students stated that they had used social media to share formal schoolwork. And if they did so, it was seldom motivated to support a learning process in a constructive way. If they shared, it happened in small online networks consisting of two or three connections, often within the limit of a one-to-one relationship. Anything that related to online use was to be done on the school’s LMS. The vocational students expressed skepticism and privacy was an issue. They had an individualized approach and considered that sharing should be performed under the strictest confidentiality, mainly off-line between student and teacher in a private physical space.

The students in general or academic studies had a different attitude and motivation. They used Facebook and Skype to organize goal-orientated learning activities. This applied to at least 10 of my informants. Yet there are user patterns showing layers of user divides and variable degree of openness. All the Facebook groups were closed, but they were created for different reasons. Some were class-based, while others were created as part of temporary school projects, implying variations in how sustainable and interactive they are. There were at least four or five groups in my data sample. None of their teachers had created the Facebook groups. Several students stated that they had been added without their consent, but started using them regularly, while others had taken the active decision to create their own Facebook groups. We regularly find the repeating pattern that some young resourceful student took the initiative to create a Facebook group and took on the role as group administrator. In other cases, we find that students who are used to engaging in several social media platforms – displaying traits of being “prosumers” – are those who are most likely to be active and use them to organize formal learning, and this seems to be predominantly female students.

The students had a clear perception that the school related Facebook groups were digital sites off-limits to teachers. As an informal rule, teachers should not be members of the Facebook groups and neither did they appear to be connected with the students on social media. Often it seems there was a *consensus* that both parties should keep their distance from each other. The students and the teachers belonged to separate social groups and did not cross boundaries. To do so could potentially put them in embarrassing situations:

- I-24: They could have written that, this was something you should have paid attention to in class. And, you have to be friends with the teacher, if they’re to be member of our Facebook group. And I don’t think that there are any who are Facebook friends with the teachers.

Facebook groups as a “class bulletin board”

The second theme in the student learning ecology concerns traits of technological reframing of Facebook groups. The students tend to reframe them to fit their formal learning activities, a user adoption defined by the digital content students share among themselves and how they classify and evaluate them. Moreover, they are ascribed meaning by the type of school work or learning activity they carry out and organize at the time. The Facebook groups are perceived and used in two general ways. First, the students classified them as “class bulletin boards”. There appeared to be at least three class-based Facebook groups in my data. The students in academic training were the main users. None of the students in vocational training reported having created any and never used them. Second, once Facebook groups are created, they require some online interactivity or traffic. On the class-based Facebook group, there is little data suggesting active

sharing, but merely that the students used them as practical digital sites to coordinate simple formal learning activities:

- R: Are you member of a Facebook group?
I-24: Yes. We have a class group. There we talk about what homework and what tests we're going to have, stuff like that.
R: Are you active in one of those? I have understood that it's not created by your teachers, but by you guys?
I-24: Yes, to remind each other that we have tests. It's very smart!
R: Is this a bulletin board or do you have discussions about assignments?
I-25: No, not about topics.
I-24: It's like that, if someone has homework, and has forgotten what pages we are supposed to read for a class, then you post, "What page we are supposed to read in science?", and then there is someone who posts an answer, if they know it.

This transcript from an interview with two female students illustrates that class-based Facebook groups are not generally used for larger reflective discussions about assignments. There are no traits suggesting that students exchange their opinions, as part of an effort to co-produce knowledge and learn more about a subject that interests them. In contrast, the class-based Facebook groups are used to "keep oneself updated" and are viewed as useful. The students post and retrieve simple practical information, which is part of their preparations for classes. They share information on what they have for homework for the next class, pages they are supposed to read for a particular lesson and for school tests:

- I-21: We have a Facebook group. When we have tests, we can share cram sheets. If there is someone who has not done their homework, then we can share, so we can talk to each other; what is our homework for the next day, what is the work for the next week. In that sense, it is very convenient.

The Facebook class groups work as a "student answering service", where online communication is minimal and characterized by the expectation of a short answer. This information exchange is a supplement to the regular reminders students do face-to-face, which perhaps is reminiscent of the old "work plan", a sheet which teachers handed out to students at the beginning of each week showing their work schedule.

Production of a learning tool – the cram sheet

The third theme illustrates a non-constructive side of the shadow student learning ecology. Until now we have considered a positive side. In other cases, this is not the case. Certain students can refuse to participate, an aspect that is especially associated with the creation and sharing of a popular student user-generated item, *the cram sheet*. Cram sheets are concise sets of study notes of compressed knowledge used for quick reference. Students use them as part of their preparations for tests and exams, as a method to memorize knowledge in any given subject they study. The practice of making them is an exercise, as learners have to perform a piece of work by themselves. Students will often turn to the Internet to retrieve them there. But there is a slight catch to that. There is an unknown quantity of cram sheets in worldwide circulation. Any student searching for one will often face a recurrent problem. The relevant and exact cram sheet covering the material for a certain test or exam can be hard to find. If they are not found, they must be made by someone:

- R: What's going on there?
- I-23: Everything about what we have in homework, when classes start, cram sheet, tests, and what the tests are about.
- R: Do the students share their schoolwork very actively there?
- I-23: Yes, a lot. It's mostly those who don't bother to study and who don't bother to do well at school, who ask if others can post cram sheets. I don't post my cram sheets there.
- R: What is a cram sheet?
- I-23: We often have a topic related to our tests. Everything that we have in a specific topic, we write down on a sheet, which is important to know. So, it's almost like a summary of what we're going to have on the next test.
- R: Is this a method that you created or developed by yourself?
- I-23: It's almost like taking notes in class, where you write what you feel is important knowing. I use cram sheets a lot. Mostly, I use them when I browse through what we have read in the textbook and write down what's important.
- R: Is this a method you learned in school?
- I-23: Yes.
- R: Are you careful about sharing cram sheets on Facebook?
- I-23: Yes, I think it's too easy. I think that they ought to figure it out by themselves and organize their own cram sheet. They only dodge work.
- R: Because you're really doing the work for them, right?
- I-23: Yes. I will not do that free work for them. I've worked hard on this and I will not just give it away.
- R: Are there many asking for cram sheets?
- I-23: It's the same ones who ask. They rarely post cram sheets themselves.
- R: There is somebody doing that?
- I-23: Sometimes there is.
- R: Are there any who are more active in this Facebook group than others?
- I-23: Yes. Those who don't pay attention in class, those who need more info.

The use and creating of cram sheets reflects how students embed or transfer a learning strategy and carry out a goal-driven activity in the social media world, a learning strategy that aims at reproducing formal knowledge. But the above dialogue from an interview with a male student shows that cram sheets create divisions and disputes. His decision or plain refusal to publish his cram sheets creates values and divisions, identifying social categories between different student types. This is displayed through the ascribed projection of the social identity of "those who need more info". The student who requests digital items is ascribed a negative value, a "free rider", a type of student who attempts to benefit from the learning and work of other students without repaying them. These students attempt to "profit" from others' formal learning and work efforts, a type of "student opportunist". This user's story shows that not sharing does not encourage constructive online social interaction, as in essence it seems to create an imbalance. The student's attitude therefore displays defined norms or values commonly seen when items are exchanged between humans. If one is to share, the student has a clear perception that his contributions should have a symmetrical value and be returned. If something is being given away, it creates an expectation of reciprocity. The student knows that sharing means making it easier for student who does not play and understand the idea of social reciprocity. If he shares a cram sheet, he will probably get little in return and basically facilitate the formal learning process for his peers.

Using Skype to con homework

The fourth theme in the shadow student learning ecology demonstrates the performance of another personal knowledge acquisition strategy, illustrating how social media is used for what can be seen as a non-constructive way to achieve good standards for learning. This shows how students use chat software more or less to con their homework assignments, but equally also reveals their ingenuity in reengineering their online resource management practices. Such practices are seldom intended at retrieving information from the Web for reflection to create in-depth understanding of a topic. They are only sharing practices, where students use online connections of people from Facebook or Skype to manufacture and reproduce a digital item quickly with as little labor as possible. This applied especially when students needed to do their homework in a hurry, in order to avoid being marked for “non-completion” on compulsory assignments, a practice they referred to as “last minute work”:

- R: Do you use Skype to do schoolwork?
I-12: That too. To send files.
R: What kind of files are they?
I-13: Homework.
I-12: Among other homework. Collaboration assignments, for example. One writes something on one computer and then sends it to the others.
R: Is that a Word file?
I-14: Yes. Anything, really.
R: Is there someone who writes a document, and then circulates it?
I-13: It happens sometimes.
R: Who starts writing the document?
I-12: It varies.
I-13: It is often those who are quite structured.
R: Is it you guys?
I-13: Yeah.
I-14: Yes, you might say that.
R: Is that within your network? Is it so that one starts to write, and then some other adds more? Is that how it works?
I-12: No.
I-13: It's like “last minute work”. If it happens that your teacher is going to check your homework, then you get it one minute before you have to show it.
R: But can't the teacher identify this?
I-14: No.
I-13: No. They just look at the assignment.
R: Is this something you learned here, at this school?
I-14: We got the laptop this year.
I-13: PC was not that “cool” in junior high school.
R: It wasn't?
I-12: No. It was first in high school that we got our own laptops.

The transcript from an interview with three male students only contributes to our knowledge that in many school cultures students attempt to manipulate their homework. We see the example of an old and well-tried educational “ritual game of deception” between students and teachers. Teachers are of course familiar with the fact that students try to deceive them into the belief that they have completed their homework assignments. Here, this practice is embedded with their use of Skype, which act as a type of “back stage”, where the students circulate and coordinate a similar piece of a digital work, which is displayed on their “front stage” as the

individual work of a single student, when in fact it is not. Their use of embedding homework assignments with Skype is part of an impression management strategy, a type of theatrical social role play. The practice is doubtfully constructive for fostering good study habits, but shows that students use close ties in the learning ecology to modify “cut and paste” practices. We also see that students abide to some sort of code, norm or value, which still questions if homework has an educational value or if it is a practice intended on fostering students to become more autonomous and self-organized.

Facebook and Google Docs for learning

The fifth theme in the student learning ecology illustrates an advanced use of Facebook groups. It can be viewed as an innovative and positive way the students use Facebook groups to perform knowledge acquisition strategies to organize their formal learning activities. The practice is a blended approach, where formal learning is staged in the intersection between face-to-face interaction and use of digital spaces. It is a constructive learning activity and is not based on investing minimal personal efforts, to get their “homework done” before a final deadline approaches, for example. The students’ exchange of information is part of interaction, collaboration, and reflection, where Internet content is actively browsed and retrieved and transformed into formal knowledge, rendering a student self-initiated co-knowledge production process. The students performed this learning activity to create, to sensemake depth, and process information to formal knowledge by interaction in small online networks. It constitutes a practice where students attempt to expand their knowledge horizon on an already established socio-cultural experience. And much of this happened beyond the direct supervision of their educators.

Female students in academic studies reported using Facebook groups in this way. The female students created temporary Facebook groups as part of a school project, which lasted for two or three weeks and covered various subjects. My informants explained that they were supposed to work in groups and present and submit their work as an essay or give a presentation in front of their class. As part of this learning activity, the Facebook groups came to good practical use and worked as a type of knowledge repositories or coordination sites for storing of resources and material they evaluated as important to include in their school projects. This included sending each other URL links to blogs and news stories and uploading of documents which was part of their initial research. But the most crucial aspect of this organizing is how we find an example of two female students using Facebook groups as an *online discussion* forum, where they *reflect* upon on their assignments by writing updates and replying to them:

- I-15: We had a group project, called “2050 region”, which aimed at addressing how our region is going to look in the year 2050. We created a Facebook group where we discussed what we were supposed to write, what we should put in our project, what was relevant to have, and things like that.
- R: Who was most active in that group? Was that you?
- I-16: No, it was not a big group. All contributed and we were five students. And we used Google Docs to submit our final work.

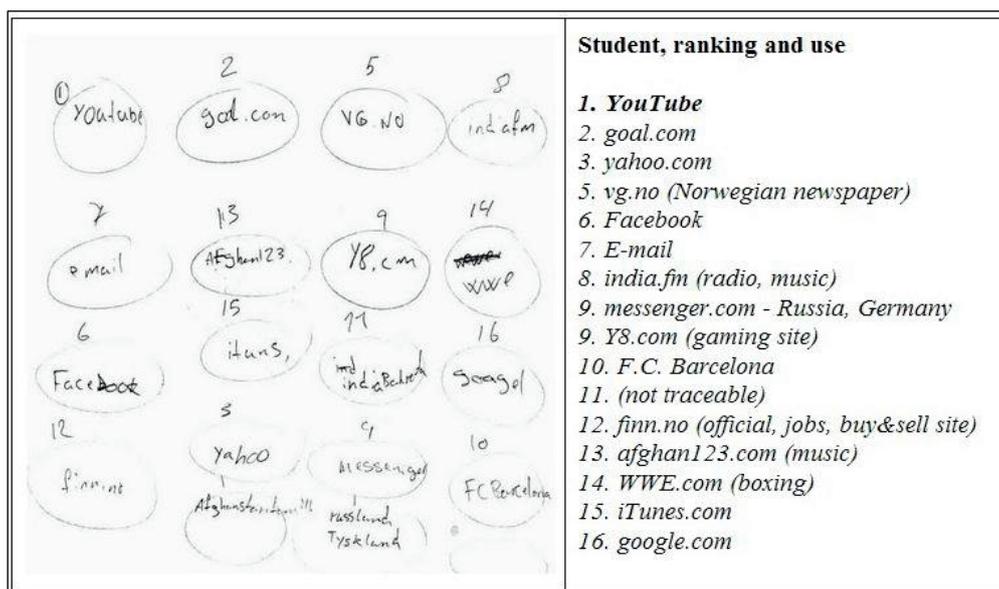
These two female students explained that they extensively discussed the project’s intention. The Facebook groups appeared to be used as a type of “digital sketch book”, shaping into a digital site to draft ideas to filter out unnecessary information, before they co-authored their school essay in the collaborative office suite software Google Docs. This displays a collaborative approach, where Facebook groups and Google Docs are used jointly in the organization of formal learning. The students demonstrating this capacity are often the most

autonomous, self-organized, and resourceful. They are accustomed to social media's participatory culture and engage in it as prosumers. The two female students, for example, were both active bloggers. They appear to master the complexity and chaos of the current web and are well versed in writing and reading texts. They possess a reflective skill which perhaps aided them to tell the difference in quality of what information is relevant and irrelevant. They manage the transformation of data to the logics of formalized knowledge or comply with the intent of goal-driven learning activities. They can modify and interpret web content, beyond "cut and paste" or retrieval practices. And students who used Facebook groups and co-authored school projects in Google Docs reported having positive learning experiences as they got help from their peers:

I-15: And when all of us were going to contribute in the written part, I was very nervous, because I'm not so good in writing Norwegian. And then I sent it to the people in the group, so that they could look through it, what I should write more about or what was wrong. Just to be sure it was correct what I had done. So, I got good feedback. It helped me a lot that we had a Facebook group. I got to hear, "It was awesome, but I could imagine that you wrote a bit more about fish farming on Salmar too." And then I wrote a bit more about that. And the other would look at it and then it was time to submit it.

2. Organizing of informal learning activities

Figure 4.3 Mental node of a student from data sample.



Moving on to a different side of the shadow student learning ecology, I will now address how the students use social media to organize informal learning activities. This demonstrates a more advanced user behavior, reflecting how students use social media to perform other personal knowledge acquisition strategies than we have just examined. Moreover, it perhaps aligns to how the students normally use social media, which connects pursuing leisure activities and socializing with people. To demonstrate this empirically means examining the various ways the students use YouTube to learn about their hobbies. The students' use of YouTube content shows

that they are able to retrieve, and in some cases publish, user-generated content, and connect it to social practices that interest them. Students carry out accurate searches to locate distinct pieces of information, reflect upon and apply it to learn more about an activity they like. This is a self-organized process, suggesting that students learn from digital material produced by peers in the YouTube community, a self-organized learning happening beyond the direct supervision of any official learning authority.

My reason for focusing on YouTube videos is that many of the male students in vocational training reported using them. In several of the mental nodes we asked the students to draw, for example, YouTube surfaced at the top of the priority list of web sites they visited. This is illustrated in Figure 4.3. As one male student described it, “When I’m home, I always have Facebook, Twitter and YouTube visible”. Later, the interviews disclosed that there was a “hidden connection” between the web sites they regularly visited. YouTube videos figured as a digital resource and as a knowledge repository, which they used to learn more about interests and other sites they visited. This user pattern reflected that their use did not involve isolated learning activities, but connected to interdependent contexts that crossed social media uses with a social practice.

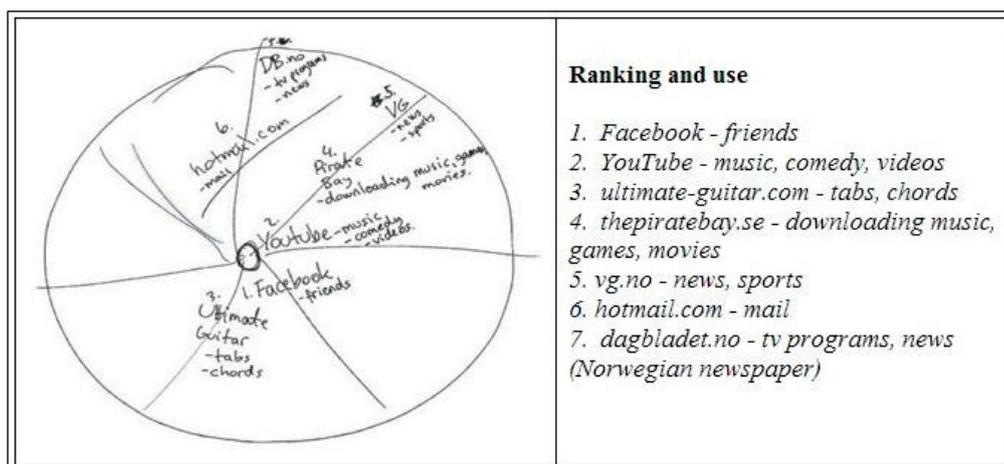
The students were fond of particular YouTube videos created by the YouTube community. YouTube has been in existence since 2005, and the YouTube community has developed a variety of internal web subgenres. These appear as particular YouTube media texts. These take the form according to the suggestions to search words, when you type a search word into YouTube’s search tool bar. One of these subgenres is “YouTube tutorials”. These YouTube videos reflect an emerging “peer-to-peer-share” social network and informal learning setting. YouTube is full of them. They are short videos uploaded by users. Many of these videos last from two to five minutes. One common format in many of them, for example, is that someone takes on the role of a type of instructor, giving step-by-step instructions on how to do something. The “tutor” or “instructor”, who is a person claiming some degree of “expertise” by self-accumulated experience, breaks down the work process into separate modules or sections. These YouTube videos cover a wide range of topics, whereby a person intends to model and disseminate a type of knowledge or skill to an audience of anonymous learners. The videos are behavioristic, claiming to contain informal knowledge. In a sense, they can be seen as informal educational video blogs.

The students reported browsing, retrieving, and interpreting a variety of YouTube videos. To show how they did this more accurately, the following data analysis examines this and covers the personal user experience of nine students. These are informants 1, 2, 6, 11, 12, 15, 16, 24 and 25: five male and four female students. Based on their user stories, I have also categorized them into three types of use of the videos. Each theme outlines their personal knowledge acquisition strategies. They show how they browse YouTube for relevant videos, retrieve, and study them, take the information seen in them, and apply it to carry out and learn more about an activity they enjoy. In this way, they are able to connect “dots of information” or, so to speak, they show traits of an active learning process. The first theme explores how they use YouTube videos as a means to learn to play a musical instrument. The second theme connects to how they use YouTube videos to learn about playing games, while the third theme shows how they use YouTube videos to learn more about photography.

Learning to play a musical instrument

YouTube is full of videos with short or long music lessons, which are made by amateurs as well as semi-professional and professional music instructors. These YouTube videos often follow a similar template, where a YouTube user takes on the role as an online instructor. YouTube music users make short videos, explaining how to play a cover song, different types of picking techniques, chord progressions, etc. The videos can act as replacements or a type of literacy-changer for those who do not know how to read musical notation. Many music lessons are “simplifiers of formal knowledge”, intended to make music theory understandable for those who want to learn to play an instrument or enhance their musical skills. The YouTube videos contain graphic displays of tablature, the chords used in a song, forming practical suggestions for a musical arrangement. They are media texts that make it easier for a learner to learn, as one can go back and forth and study the accurate way to play something. For those who did not attend a music school or private lessons, the normal way of learning to play an instrument has often been by self-study, rendering a type of autodidactic skill-set. Before the YouTube era, the “old school” had to listen to a record and learn songs by a personal “trial and error” practice. But now the YouTube videos have simplified this process; they deconstruct songs and show the arrangements in great detail, which makes it easier to learn your favorite music.

Figure 4.4 Mental node of I-2 from data sample.



Four students, informants 2, 15, 16, and 24, used YouTube videos containing music lessons. The students had similar but different approaches to how they used YouTube videos to learn and improve their skills on the musical instruments they played.

The first transcript shows how a male student uses a variety of digital resources to learn to play songs on his favorite instrument, the bass guitar. The student was studying to become a carpenter and attended vocational training. His mental node is displayed in Figure 4.4. He explains:

I-2: I'm on Facebook, for example, I find some videos on YouTube. I want to learn a song. I go to Ultimate Guitar, learn the song. I only go to a web page, so you can download the tabs or the chords. You can find everything there. All kinds of music you can find on that page.

The male student explained an informal learning process, which often started when he is on Facebook. Thereafter, he looked for music lessons on YouTube, but he supplemented this with looking for and retrieving bass tablatures of songs from specialized music theory web pages dedicated to arranging music for self-studies. Such web pages contain an abundant quantity of chords and tablature, which he regularly visited. This meant that his way to improve his skills on the bass guitar included using digital learning resources other than just using YouTube video music lessons. We find other user patterns among female students:

- R: Have you ever heard about tutorials?
I-24: Yes. I watch them a lot. I watch them, so I can learn to play the piano, for example, because I can't read notes. I try to see how they play songs.

In a group interview with two female students, they explained:

- R: Do you use YouTube to learn?
I-15: I tried to learn from YouTube, to play guitar, but then I didn't have an awesome guitar either. It was purchased in Turkey. It did not work so well for me, but I learned some chords. It is possible to use it for learning. Not that I use it so much.
R: Do you use it to learn?
I-16: I have used it for learning.
R: Explain.
I-16: For piano, chords, learning stuff, like that. I've always played by listening, but when I come to a point in the song, where I don't really know where I'm going, I go on YouTube. Then I see how they play the song, how they press the keys on the piano. There are many "how to play" videos, which I've been watching.
R: So, you use tutorials?
I-16: Yes. I've used them.

The transcripts demonstrate nuances. Informants 15, 16 and 24 did not know how to read musical notation or tablature, but instead used YouTube videos as a direct "instruction tool". They studied YouTube music lessons to see how songs are played "in practice" and attempted to reproduce a music instructor's way of playing a piece of music into their own performance. This consisted of watching and paying attention to small details in the YouTube videos. Informant 24 studied which keys a music instructor pressed and tried to copy them into her own playing. Informant 16 points out that she learns songs by listening to them first, and if she struggles, the YouTube videos act as a supplement to get her back on the right track, showing the performance of highly personal knowledge acquisition strategies.

Using online peers to game

The second theme centers on another interesting attribute. My interviews with the male students disclosed how they extensively consume YouTube videos to learn to use and perform another of their hobbies, online gaming, showing also another way YouTube videos are used to pursue and organize informal learning activities. They studied YouTube videos to play games like *World of Warcraft*, *Halo* or *Counter Strike*. And there was a good reason for studying YouTube videos. Gaming is in many cases a massive undertaking, suggesting that it is more than just a random pastime deed, as adolescents play for hours. It is a complex social practice, which involves a long learning process – if one wants to get really good at it. And as with all social practices, there is also a learning curve. In this regard, YouTube videos were used as a knowledge repository to cut down on that learning curve. As with the YouTube music universe, we find similar user patterns in the gaming sphere. Experienced gamers record and show off

their great triumphs, nice moves, and how they uncovered a game's secret level, for example. Experienced gamers create YouTube videos, which other gamers use to learn tactics and strategies, acting as a type of "short cut" to cut down the learning curve of a game. We find a share-to-share peer social network emerging from the YouTube community, which produces knowledge that others use. Informants 6 and 12 used YouTube videos to learn to play games, which they referred to as "guides" and "trick moves":

I-6: If I'm playing a game, for example, and I need a guide, which shows me how I do it, then I watch that on YouTube.

R: A type of YouTube tutorial?

I-6: Yes.

Another male informant explains:

I-12: I have used YouTube a lot, and searched it for clips that can teach me trick moves, so I can play *FIFA* better.

YouTube videos act as forms of "quick readers" on how to play a game faster, easier than learning and knowing it the hard way, by playing and uncovering the difficult parts by yourself. Some would argue that this is "cheating". On the other hand, there are aspects with YouTube videos which show a higher degree of self-organizing than just learning short-cuts and interesting moves to impress your friends. They render a gamer system of cultural beliefs, centered on esthetic or personal taste:

I-11: I use it very often. Every time I am at my PC, its YouTube, Twitter and Facebook.

R: What's so great about YouTube?

I-11: They post a lot of funny videos, like famous people. I play PlayStation. There are many who make "commentaries".

R: What is that?

I-11: They play and comment, find errors in games, and they make fun of it. If a FIFA player has only one foot. They forget sometimes to make a foot of a person.

R: They point out errors?

I-11: Yes, they find errors in all games.

R: And then they make a gag out of it?

I-11: They make it so that it's funny, while they comment on it.

Informant 11, who was studying to become a carpenter, told me that experienced gamers make YouTube videos pointing out design flaws they find in games they play. This practice is not dissimilar to practices and the esthetic belief system seen in the hacker culture. Hacking is often about finding technical flaws in computer systems and disseminating them to the hacker community to improve running codes. This logic is also used among gamers. And finding design flaws is a type of low public rating of someone's work, which for the students has both a personal entertainment value and is also part of their informal learning. In contrast, Informant 1 used sides of this cultural logic in a different way. He was a content-producer of YouTube videos and contributed with his personal experiences to the YouTube community. But his motivation for making them was seldom driven by a public urge to educate his peers, rather it acted as a type of "public showing-off" to his friends. To publish videos on YouTube, however, they needed to have some degree of quality:

- I-1: I did it before, when I gamed. For example, if I did something crazy, I edited the videos and posted them on YouTube. It was a simple way of sending and showing them to my buddies.
- R: What did you make?
- I-1: You know CS?
- R: No.
- I-1: It's *Counter Strike*. It is an army, a shooting game. You play in teams. For example, we are five buddies, who team up against five other buddies. If you're alone, killing all five of them, it's very good. Then you could take that in the video, which shows how you killed all five of them. If you killed them in a good way. You can post videos of that. And you add the happy music.
- R: You created a video-collage?
- I-1: Yes.

The students reported using YouTube videos in more complex ways too. This shows how use and consumption of YouTube videos enters into a larger socio-cultural context or practice, where friends come together in their spare time and actively study YouTube videos to learn about a new game which has just been released:

- I-11: Most times when a new game has been released, all my mates meet to find out more about it. We often sit and look on YouTube to see new things. It happens when we have to learn this and that, and that's the way to do it. It's really that way we use YouTube.
- R: So you're sitting around and talking together?
- I-11: Yes, we are discussing.
- R: It seems to be very useful? It teaches you a lot?
- I-11: I learn a lot from it. I think that I couldn't have been able to play, if it wasn't for YouTube videos.
- R: It would have been much harder?
- I-11: Yes. I'm pretty sure of that.

The student argues that YouTube videos enact as an indispensable informal learning resource, which in essence is vital to learn to play a game at all. Moreover, it is an imperative to "crack it", as so to speak. It is a source to learn new aspects. But there is another side to it. He and his friends attempt make sense of a game by active interpretation, reflection and engagement on the basis of others' work by exchanging opinions and testing out their experiences to gain insights, a trait showing a collective informal learning process.

Learning about photography

The third theme shows how students use YouTube videos to learn about other interests. This example connects to the user experience of a female student attending academic studies. She used YouTube videos to learn about one of her favorite hobbies, photography:

- I-25: I use YouTube videos to learn more about photo programs, so I can edit images, for example. It's very complicated. Many people post videos on how to edit vintage photos, which I have been watching a lot.

We here find a case of a student who harvests informal knowledge produced by the YouTube community to enhance her own skills. More experienced amateur and professional photographers produce highly semi-instructional videos, which are based on how they have used computer software needed to edit their photos. These experiences enter into her informal learning process, as she watches a variety of YouTube videos covering different themes. This includes how to download and install photo computer software from open sites and how to use their embedded features or functionalities.

4.4 Summary

The intention with this chapter has been to contextualize the dissertation's first model, *the shadow student learning ecology*. I have striven to give a learner perspective on use of social media, arguing that students use social media to organize self-initiated learning activities. This has been exemplified by looking at the ways in which a group of students organized formal and informal learning. These students attended a high school where they were provided with laptops with direct access to the Internet, but a technical filter prevented them from using Facebook. To show an unexplored side of that situation, I describe how they performed a range of social media practices, which holistically resembles an autonomous learning ecology that was an off-limits site for their teachers. I explained this argument over the chapter's three parts. The first part linked my model to a framework in educational research, which attempted to develop a perspective on students' use of technology and learning. The second part outlined the background to the educational measures on providing students with laptops and experiences of it. The third part described the Alfa Organization and the students' experiences with social media uses. This part also paid particular attention to how students took the initiative to organize their learning activities. The findings are discussed in Chapter 8.