



Environmental factors that influence self-regulated learning: What are the patterns in school environment that emerge in life histories of professionals who are highly self-regulated?



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Keywords: self-regulated learning, school environment, patterns, biographical interviews

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Abstract

In a world where organizations need employees that can regulate their learning in order to deal with the constantly changing demands of the labor market, the need of exploring the ways of enhancing self-regulated learning skills is very intense. Self-regulated learning refers to learning that is guided by metacognition (thinking about one's thinking), strategic action (planning, monitoring, and evaluating personal progress against a standard), and motivation to learn. A self-regulated learner is characterized by being proactive, setting goals, monitoring and evaluating his/hers own progress and by adapting his/hers strategies for future tasks. For that reason it is important to explore the factors that may contribute into enhancing SRL from early age of someone's life. The present study focuses on examining in depth the school factors in childhood and adolescence that may contribute to becoming highly self-regulated learner. In order to identify these school factors, retrospective, semi-structured biographical interviews were conducted on 37 knowledge workers. They describe their most striking life experiences that affected their learning skills. These experiences were examined in terms of teaching methods, peer interaction and school performance experiences that may contributed into becoming highly self-regulated learners. The results indicated that most participants mentioned that teaching methods and their interaction with peers played an important role in their overall development of SRL skills.

Introduction

Problem Statement

In an era of technological, economical, and social development it is necessary to develop employees that are qualified and able to adapt in the workforce (Jossberger, Brand-Gruwel, Boshuizen & Van de Wiel, 2010). Workers often are expected to be able to develop essential learning skills sometimes formally and structured (for instance coaching and mentoring or while learning a new position) and other times informally and unstructured in their business settings (for example, help seeking and knowledge exchanging with colleagues) (Margaryan, Littlejohn & Milligan, 2013). These learning skills should be constantly refined and adapted to new contents and requirements (Margaryan et al, 2013). But, what initiates this personal challenge of constant learning? If we look back, what are the crucial experiences that helped adults develop as learners? Learning, as a process of gaining knowledge, can empower people's competence to set and succeed in their own learning goals. Self-regulated learning (SRL) is an essential concept used to explain this process and SRL skills can be developed from early childhood (Zimmerman, 2002).

Self-regulated learning (SRL) has been studied extensively the last decades in educational (Dignath, Buettner & Langfeldt, 2008; Biemiller, Shany, Inglis, & Meichenbaum, 1998) and working context (Littlejohn, Milligan, & Margaryan, 2012; Fontana et al., 2015). Self-regulated learning is defined as "self-generated thoughts, feelings and actions that are planned and cyclically adapted to the attainment of personal goals" (Zimmerman, 2000, p18). It refers to learning as an active and constructive process, where learners set their goals, guide their strategic actions by monitoring, controlling their cognition, and evaluate their motivation and behaviour (Saks & Leijen, 2014; Boekarts, Pintrich, & Zeidner, 2005). Zimmerman (2000) identifies three main phases in SRL process: Forethought, performance and self-reflection, followed by numerous sub-phases which describe the individual's behaviour on the path of self-regulating learning. As it is also described by Loyens (2008) SRL is an umbrella term for various processes such as goal setting, metacognition, and self-assessment, all of which influence learning in various ways. In

addition, it helps learners to train how to expand their developmental and contextual boundaries and to become more effective learners.

As the work market evolves and requires workers who are able to initiate and regulate their learning, it is essential to understand the factors that influence the development of self-regulated learning skills. Several researchers have argued about the environmental factors that lead an individual into becoming highly self-regulated (Bidjerano et al, 2007; Biemiller et al, 1998, Boekarts, 1999), such as family and parental style, hobbies, role models and school. Much research has been done in a micro-level connecting SRL and teaching methods with high academic achievement (Boekarts et al, 2005; Paris & Paris, 2001; Zimmerman, 1999). On the other hand, not much has been done exploring in a macro-level the school experiences that had a lasting effect through out someones life. Aspects as different school types and teaching methods or peer interaction, that had a great impact and helped to evolve into a high self-regulated worker. There are certain teaching methods that can promote autonomy decision making in the classroom and help increase the students' motivation and willingness to engage in their learning tasks (Hornstra, Mansfield, van der Veen, Peetsma, & Volman 2015) . An equally significant aspect is peer interaction. Interaction with peers can have a positive effect on SRL skills by providing motivational support, sharing experiences and practicing learning strategies through discussion (Effeney, Carroll, & Bahr, 2013). Moreover, SRL is considered an important component of school performance (Pintrich & De Groot, 1990). When students practice systematically their motivational and metacognitive strategies it is more likely to become high achievers (Zimmerman, 1990). Teaching and peer interaction processes can help students effectively develop these strategies. Therefore it is important to examine more adequately which aspects of the school experience in a HSRL's life were more important and had a meaningful impact on their SRL skills development.

The goal of the present study is to explore the factors in the school environment that had a lasting effect throughout life and may lead an individual into becoming a high self-regulated learner (HSRL). More specifically, this study aims on examining the common school experiences that may emerge from the biographical interviews of knowledge workers, that had a lasting effect and may led them into becoming HSRLs. Teaching methods and peer interaction experiences in school life of high self-regulated learners' life can provide an overview of the factors in school environment that helps a child evolve into a self-regulated learner. In addition, the impact of these factors into the development of SRL skills and their contribution to HSRLs school performance is examined. These factors will help to formulate hypothesis for further research.

Theoretical Framework:

Self-regulated learning. As mentioned above, SRL is an essential concept in children's as well as in adults' education. Parents, teachers and even employees embrace practices that encourage individuals in engaging this powerful skill, described as "the key to successful learning in school and beyond" (Boekaerts M, 1999). According to Boekaerts (1999), we cannot explain successful learning, unless we use the opportunity that SRL provides in identifying the different components (such as cognition, motivation and performance) that are part of the successful learning. Successful learning depends also on the mutual interaction that occurs among these components, and the relation between the learning and a person's goal structure, motivation and metacognition (Boekaerts M, 1999). In line with these findings, Paris and Paris (2001) explain that SRL "emphasizes autonomy and control by the individual who monitors, directs, and regulates actions toward goals of information acquisition, expanding expertise, and self-improvement" (p. 89).

In the present study we focus on the work of Zimmerman (2002), who encompasses the previous definitions of Boekarts and Paris explaining that SRL is a process in which learners

transform their mental abilities into academic and working skills by setting goals, guiding their strategic actions and evaluating their performance. More specifically, he describes SRL as a cyclical process, where the individuals plan for a task, monitor their performance, and then reflect on the outcome. The cycle then repeats as the individual uses the reflection to adapt and get ready for the next task. The process is not the same for everyone; the learner should customize and adjust it for specific learning tasks (Zimmerman, 2002). Three main phases of this cyclical process can be identified (Figure 1). First, the forethought phase refers to processes that occur before efforts to learn; establishing a plan or setting goals can lead to better outcomes. Self-motivation and self-efficacy play an important role in this phase. Self-efficacy refers to students' belief that they are able and competent to learn and achieve their goals and it is considered as an important predictor of self-regulated learning (Pintrich, 1999). Second, the performance phase refers to processes that occur during implementation of the action plan that was set in the previous phase, such as following a strategy and monitoring the progress. And third, self-reflection refers to processes that occur after each learning effort; evaluating the used strategies and adapt the planning for the next task.



Figure 1. The Cycle of Self-Regulated Learning.

While SRL as a theoretical framework has been explored from a variety of perspectives, in the present study SRL is investigated not as a quality that some learners have and others do not, but as the process by which abilities can be developed into

learning skills throughout a learner's life (Zimmerman, 2002). In a highly self-regulated learner many characteristic behaviours can be identified. Highly self-regulated learners proactively identify learning needs and set learning goals, decide on suitable strategies, organize and prioritize materials and information according to their time, monitor their learning by seeking feedback on their performance and make necessary adjustments for future learning tasks (Winne, 1995; Zimmerman, 2001). In addition, effective self-regulated learners are more likely to identify learning opportunities and overcome barriers to learning by showing learning initiative (Fontana et al, 2015).

Next in this research we are going to elaborate on the school factors that may help a learner to develop these skills and competences in order to become highly self-regulated learner.

School factors. Several researchers, connecting SRL with the education and the school environments, show that this process can be teachable (Schunk, 1998) and helps to increase students' motivation and academic achievements (Zimmerman, 2001; Boekaerts, 1997). Teachers and peers can be significant factors enhancing SRL skills in the school environment through many ways, such as providing guidance and sharing feedback or experiences (Effeney et al, 2013). In this section the connection between these factors and SRL is explained. In addition, school performance, as an outcome of student's personal effort, is examined in order to see whether it can be influenced by SRL skills that are promoted by teaching methods and the peer interaction of the HSRLs' childhood and adolescence.

Teaching methods. Teachers, are responsible -among others- to support and guide students in their knowledge acquisition. Teachers also have several responsibilities towards their students in order to prepare them for the adult life and the labor market, such as teaching vocational, learning and citizenship competencies (Jossberger et al, 2010).

It is argued that formal education, both in primary as well as in secondary school, should play an important role in the development of these competencies and it should be designed accordingly for primary and secondary school (Boekaerts, 1997). So far there is not enough evidence indicating that teachers are adequately equipped to support this development (Jossberger et al, 2010).

It is widely known that the learning environment is an important factor to engage students' interest in learning (Hornstra et al, 2015; Rathunde & Csikszentmihalyi, 2005). Teachers are the main actors in shaping this environment. By using the appropriate teaching methods, teachers can support students on establishing achievable goals, enhance students' interest and motivation in learning and help them choose suitable learning strategies (Zimmerman, 2002). On the other hand, when teachers are remote and focused narrowly on students' achievement, students may feel demotivated (Rathunde et al, 2005). If the learning environment mainly involves around lectures and heavy use of textbooks, students feel confined and their motivation and achievements are negatively affected (Rathunde et al, 2005). That type of teaching approach is described as traditional.

The traditional teaching method is a teacher-centred approach, aiming on grading and graduation of the students. Students are matched in class by age or ability and are taught the same material, which is based on textbooks and lectures (Lourenço et al, 2006). The curriculum is common for students of the same age, regardless ability or interest. Traditional teaching method focuses on individual learning with little attention to social development (Lourenço et al, 2006). It is more likely that students feel passive since this teaching method is based on formal instructions and long lectures that requires from students to memorize and repeat for learning. That leads to eliminating students' choices, reducing the amount of information and minimizing the real world application (Rathunde et al, 2005). In order to assist students to be more effective in their learning, teachers should

use more alternative ways of approaching learning and help students become more aware of their learning needs (McKeachie, 1988).

The alternative teaching methods refer to a student-centred teaching approach that emphasizes in having small and multi-age class sizes, close relationships between students and teachers and a sense of community in class (Edwards, 2002). Students are dynamically grouped by interest or ability for each project or subject, with the possibility of joining a different groups each hour of the day. Significant attention is given to social development, including teamwork, interpersonal relationships, and self-awareness (Edwards, 2002). In addition, alternative teaching method emphasizes student-led knowledge discovery. That means that teachers aim to provide students opportunities for analysing and evaluating facts, empowering this way their critical thinking and their sense of autonomy (Schunk, 1998). Furthermore, in alternative teaching methods students can choose the learning activities that are connected to their interest (Schunk, 1998). This way they feel more motivated and willing to participate in these activities, since they can set their own learning goals (Zimmerman, 2002). In line with these findings, Pintrich (1996) indicated that students' goal orientation has a positive effect in their self-regulation skills and their self-efficacy. An excellent example of alternative teaching methods is the educational approach of Montessori. According to Edwards (2006), Montessori introduced new concepts on materials, furniture classroom design, teaching methods and the way children are perceived as intelligent units who have strong and weak points. Montessori suggested that teaching should be individualized; children should be encouraged to select their own activities; the school environment should be stimulating and specific characteristics like self-confidence, independence and self-motivation should be promoted (Edwards, 2006).

Although two opposite concepts are described above (traditional and alternative teaching methods), this should not be taken as a dichotomy. It is common to find teachers

who use alternative teaching methods in a traditional school setting (for instance formulating collaborative groups or conducting experiments) or an alternative school type using simple traditional teaching methods (such as use of textbooks) (Rathunde et al, 2005). In this study teachers and teaching methods will be examined from both traditional and alternative perspective, as the participants describe their most striking and significant moments of their school experience that played an important role into become highly self-regulated learners.

Peer interaction. While by many researchers teachers are recognized as a resource of SRL skills (Effeney et al, 2013), social interaction with schoolmates and peers can lead to the sharing of learning strategies that are related to SRL (Jones, Estell, & Alexander, 2008). Research suggests that peers and peer interaction exert influence over students' motivation and learning (Jones et al, 2005; Hogan, 1999).

Interaction in all forms is very important in primary and secondary education (Wentzel, 2005). Even though the arguments are that it is difficult to apply cognitive and metacognitive strategies in primary education (Zimmerman, 1990), younger students can benefit from training how to work into groups. In support of that, a meta-analysis conducted by Dignath, Buettner and Langfeldt (2006), in the way primary school students can learn self-regulated learning strategies more efficiently, indicated clearly that group work can make learning more efficient and improve learning motivation. More specifically, they found that primary school students who collaborate and interact with peers in class, under their teachers' systematic instructions, have better academic performance, better strategy use and are more motivated, than students that work individually.

Interaction among peers in secondary education in class or outclass activities has proven to be even more important and effective in the use of SRL strategies (Schraw et al,

2006; Jones et al, 2006) than in younger students. Effeney et al (2013) recognized that during adolescence, young people typically rely less on their parents as they become more independent and spend increasing amounts of time with their peers, whose friendships are increasingly complex and valued. For that reason it is noticed that students who have groups of friends do better at school and use more frequently SRL behaviours, than students who are isolated (Jones et al 2006). According to Wentzel (2005) that occurs because students in adolescence find in peer interaction three essential elements regarding SRL behaviours: they have the opportunities to express values and expectations on academic achievements, they ask and receive help and advice in order to facilitate learning and they rely on peers for emotional support and sense of belonging in a community.

Interaction as a process among peers has been investigated widely in the environment of cooperative learning groups. Battistich (Battistich, Solomon & Delucchi (1993) research revealed that positive interaction in cooperative learning groups can increase the intrinsic motivation and the self-esteem of the students, On the other hand, as noted, negative interaction was associated with low student outcomes. Aligned with that, Hogan (1999) in his research also demonstrated that students who were in cooperative learning groups showed greater metacognitive awareness of their learning, than students who worked alone. It appears that collaboration in small groups can be beneficial when students are engaged in inquiry based discussion of problems (Hogan, 1999). This is in line with Rathunde et al (2005) findings, indicating that positive interaction among peers can affect self-regulation skills. They argued that when discussion is promoted and students can draw information from other perspectives from their peers and it improves their ability to select strategy and plan an activity.

Furthermore, Jones et al (2006) noticed that there is difference in the level of

SRL related discussions among peers in class and out of class. In their research it is highlighted that adolescents discuss more frequently about their SRL behaviours in an out-of-class environment than in the class. That is because students feel more free and secure to participate in more academic-related discussions when they are with friends, than classmates. In addition, help-seeking in studying is more obvious to out-of-class friends. Thus, pressure towards achievements is less in a friendly surrounding.

Lastly, some students do not interact with a group. The students who work by themselves may be introverted and ignore the benefits of interacting (Wentzel, 2005). At the same time, students that do not interact, either by choice or because they are rejected, is more likely to be less engaged and motivated to participate in school activities, feel more depressed and they may have low self-efficacy (Wentzel, 2005).

In the present study peers interaction is explored from the aspect of in-class and out-class school related activities that highly self-regulated learners experienced in childhood and adolescence and might contributed into developing their SRL skills.

School performance. School performance can be described as the level of a student's success on the educational goals and standards set out by school (mostly through good grading). Over the past years much research has been conducted on factors that can be influential to school performance. A great number of research indicates the importance of students' use of self-regulated learning strategies (motivational, metacognitive, behavioural etc) in their school performance (Stevenson & Baker, 1987; Steward, 2008; Wentzel, 1998, Zimmerman, 1990).

According to Zimmerman (1990), student's performance in class can be seen partially as the outcome of the way teachers interact with students and the way the school

environment is structured. This notion is in line with Steward's (2008) research, which indicated that the school climate and the sense of school cohesion between students and teachers is important to successful students' achievements. When teachers give constructive feedback, use learning strategies and provide opportunities for initiative, the student feel more engaged to the class and more motivated to perform. Moreover, Wentzel (1998) argues that peers support has a positive relation to motivation at school and to class-related interest. That is because interpersonal interaction provides students with a sense of belonging and contribution, which is a significant motivator of children's interest in school. Furthermore, interest can be a powerful motivational construct related to self-regulated behaviour and school performance (Wentzel, 1998). It is argued that a student who is interested on a school subject has high levels of engagement and persistence at a specific task related to the subject. That can result to better studying habits, such as better planning or goal orientation, and even better use of learning strategies.

On the other hand, students that are rejected in their peer interaction are more likely to fail or underperform in school (Wentzel, 2005). That can be explained because a child who has negative interaction with peers appear to experience low levels of self-efficacy and feels demotivated to participate in class.

This study aims on identifying the ways that teaching methods and peers interaction may influenced school performance in HSRLs lives. Teachers, peers and subject interest can help the development of SRL skills (goal orientation, planning, motivation etc) and lead to good school performance. At the same time, good school performance can lead to the development of these skills, since when students overperform, they practice more their study habits and learning strategies throughout their life (Pintrich & De Groot, 1990).

Research Question and Model

Taking into consideration the aforementioned literature, concerning the characteristics of a self-regulated learner and the factors in the school environments that may influence him/her, the following research question emerges:

What are the patterns that can be identified in the school experience of professionals' life who are HSRLs?

To answer this question adequately, three sub-questions are asked:

What are the similarities that can be identified in the teaching methods that teachers used in order to affect SRL skills, as described in professionals' life history who are HSRLs?

What are the similarities that can be identified in peers' interaction during school life that may affected SRL skills, as described in professionals' life history who are HSRLs?

How did teaching methods and peers interaction contributed into school performance of HSRLs?

Research Design and Methods

Research Design

At this point it is essential to mention that the data was collected and transcribed in 2014 by another, independent researcher as part of a larger project exploring life histories of SRLearners. In the present research a life-history method was deployed, in order to identify and explore the school environment factors that influence an individual into engaging SRL. Life-history is a qualitative method which allows the researcher to explore a person's entire experience of life as a whole, highlighting the most important aspects (Atkinson, 1998). Through biographical interviews (semi-structured), a narrative method is used to describe the experiences that helped the

interviewers to evolve into self-regulated learners. Interviews give the opportunity to the research to investigate thoroughly beliefs, perspectives and views from the participants (Boudah, 2010), and also challenge the researcher to understand an individual's current attitudes and how they were influenced by initial decisions taken at another place and time (Hagemaaster, 1992) .

Respondents

An adapted version of Self-Regulated Learning at Work (SRLW) profiling questionnaire (Fontana, Milligan, Littlejohn and Margaryan, in press) was distributed to 160 participants in order to select the top quartile (Appendix 1), which consisted the sample for this research. The sample included the 39 professionals who are knowledge workers in several domains such as academia, business, government and international organisations either in private or public sector in two different countries, the United Kingdom and the Netherlands. This ensures that the sample is homogeneous along the SRL dimension, despite the differences in roles and responsibilities, as well as organisation they work for and the country of origin.

Instrumentation

The techniques that were used for this qualitative research were biographical interviews. As mentioned in the research design method, a life-history method is used. In life-history method the interview, as an instrument, do not follow a specific guideline. Semi-structured interviews combine a predetermined set of open questions, in order to prompt discussion, but it provides also the opportunity for the interviewer to add and describe a theme in his own way. Although biographical interviews are required to be conducted face-to-face, the fact that the participants were from different countries and cities made that difficult. For that reason some interviews were carried out through Skype calls and others through physical meetings. During the interviews five main fields are explored; parental styles, school experiences, university, friends and workplace environment. Regarding the school experience, there was focus on three essential dimensions, teachers and peers

and school performance. Taking this into account and the relative literature, a coding scheme was developed concerning the teaching methods that teachers and school may used in order to enhance SRL, the peers' interaction that may also contributed towards this direction and the school performance (Appendix 2). In addition, reviews of the available biographical materials (personal website, LinkedIn, blog) were taken into consideration, in order to formulate a comprehensive picture of the interviewers' profile and to prepare for the interviews.

Procedure

First, 160 individuals were contacted by email and asked to fill out the SRL@WORK questionnaire online. The top 25% (39 individuals) high scorers were invited to participate in an in-depth biographical interview. Semi-structured retrospective interviews were conducted, taped and transcribed. A copy of the transcript was sent to the respondents to get their approval and, if necessary, to ask for clarifications or additional information.

Data Analysis

As already mentioned the interviews have already been recorded and transcribed. Due to data loss, only 37 interviews were usable for coding. Hereafter, the coding scheme was deployed. The process of creating the coding scheme consisted of three levels, which eventually created a network (Figure 2). On the first level, the main labels were derived directly from the main research goal (school experience), and the subgoals (teaching methods, peer interaction and performance). On the second level, sublabels were gathered directly from the statements of the stakeholders in the interviews and named with the theory in mind, respectively for each label: alternative teaching methods described as a student-centered approaches that emphasize in interpersonal relationships between students and teachers and a self-awareness; and traditional teaching methods explained as a teacher-centered approach, aiming on individual learning, grading and graduation of the students,

and less on social development; in class interaction meaning discussions and knowledge exchanging in the school surroundings, out-of-class interaction where peers discuss in a more friendly environment; and no interaction where an individual finds difficult or useless working in groups for school activities; good performance is used when the individual has succeed on the educational goals and standards set out by school, and bad performance when the individual has not succeed on the educational goals and standards set out by school. In the coding scheme the sublabels were adequately described and a statement was used as an example for each one. On the last level, the sublabels that emerged were named. The transcribed interviews were analysed in depth and statements that were connected to sublabels of the theoretical framework were highlighted and formed the emerged sublabels (Appendix 2). More specifically, on traditional teaching methods three labels were identified: “teachers” were labelled as as the persons who implement the traditional teaching methods, the “school type” that may implement the traditional teaching methods or “school system” which is referring to teaching tactics that are implemented in a regional area. On alternative teaching methods two labels occurred: “teachers” who were identified as the persons who implement the alternative teaching methods and the “school type” that implemented alternative teaching philosophy. Regarding the in-class peers’ interaction, the labels focused on “school related” issues in the class or the school area and “friendship” which was about having fun and finding support in the school area. The same meanings had the out-of-class labels respectively for “school related issues” and “friendship”. In “no interaction” label two sublabels emerged: “by choice” meaning that the individual choose not to interact with peers, and “rejected” when the peers decide not to interact with the individual. Regarding the label “good performance” two sublabels were coded: “school liking” is when the individual succeeded in school because there is a natural interest in school or in a specific subject and “other” which refers to any other reason that may contributed into achieving good school performance. On the other side, in “bad performance” emerged two sublabels: “school aversion” which indicates that the

individual failed to school or in a subject because he/she did not like it, and “other” which also here refers to any other reason that may affected school or subject failure. At this level the emerged sublabels provided a clear picture of the analysis process. Figure 2 displays an overview of the coding tree.

After the coding scheme was completed, the interview transcripts were read and meaningful segments were coded by the use of ATLAS.ti software. Next, based on the codes a small summary for the relevant topic of each interview was given, in which the most essential aspects were listed. Segments were regarded as essential when a participant had spoken of these elements several times, had said relatively much about them, or placed emphasis on them. The summaries of the transcripts thus provided an overview of the most important elements that emerged during the interviews with the participants explaining how they perceived the process of developing into HSRLs.

Figure 2. *Overview of the coding tree*



To ensure the validity of the findings the researcher should be engaging with other

researchers to reduce research bias. For that reason a representative number of interviews were coded by three researchers, in order to code each interview twice and compare the results. Next, reliability testing was conducted, in order to calculate Cohen's Kappa. Cohen's kappa is a statistic which measures inter-rater reliability for qualitative data. That way it can be ensured that the level of the researchers' agreement is high. The researchers shared a coding matrix for each of the three levels of the labels. On the first two levels of coding, the rates were calculated from 4 interviews out of 38 transcribed interviews (10.1%) which gave an agreement of 76% (Cohen's Kappa 0.76) for the main labels, and 74% (Cohen's Kappa 0.74) for the sublabels. For the emerged sublabels the rates were calculated through a representative number of quotation for each sublabel. Table 1 presents the calculated Cohen's Kappa for these labels.

Table1. *The calculated Cohen's Kappa for the emerged sublabels*

	Alternative Teaching Methods	Traditional Teaching Methods	In-class Interaction	Out-of-class Interaction	No Interaction	Good Performance	Bad Performance
Cohen's Kappa	0.89	0.757	1	0.74	1	0.74	0.74

Results

This research tried to identify the patterns in knowledge workers' school life that led them into becoming HSRLs. Professionals that excelled on a SRL questionnaire described their life history and provided answers on the research question. All interviews were transcribed and summarized (Appendix 3). Table 2 presents a quantitative overview of the statements that have been made within the biographical interviews. In this table only the statements that were meaningful were counted and not the individuals. That means that one participant may said more than one statement.

Table 2. *Quantitative overview of the statements*

	Teaching Methods	Peer Interaction	Performance	Total
Alternative Teaching Methods	63			
Traditional Teaching Methods	57			
In class Interaction		42		
Out of class Interaction		46		
No Interaction		13		
Good Performance			58	
Bad Performance			26	
Total	120	101	48	269

Teaching Methods. Within this category the different types of teaching methods were identified. The participants made a clear distinction between traditional and alternative teaching methods and within these methods they described three sub-categories of who is promoting these methods, namely teachers, school type or regional school system. A distinction between primary and secondary school could not be presented because not all of the participants mention such a distinction. In addition, many participants mentioned both, alternative and traditional teaching methods in their interview. Table 3 summarizes the results of Alternative teaching methods and Traditional teaching methods mentioned in the interviews

Table 3. *Participants that mentioned Teaching Methods*

Sub-categories	Alternative Methods	Traditional Methods	Both Methods	Total
Teacher	10	9	6	25
School Type	2	19	13	34
School System	0	8	0	8

The first method that was mentioned by almost every participant was the traditional teaching method. Within all interviews, the responders indicated that they experienced a traditional teaching style in primary or secondary school. More specifically in this teaching style emerged three distinctions: the school type, the teachers and the regional school system. In the first distinction most of the participants (N=32, adding up categories “traditional school type” and “both”) noted that during their school life they attended at least a normal/local or religious school type. In their interviews they described that traditional school types promoted competition and rewards. In addition, rules and detentions were a common way of applying school policies. One of the participants specifically noted about the learning strategies his school used:

“We only had public schools and I don’t think there was any special approach to learning, it was mostly memorising and reproduction of knowledge I would say, especially in primary school, I think our education was very influenced by the Russian approach to education. So mostly memorising things, unless you had to solve problems like maths and physics.”

The second distinction involved the traditional teachers (N=15), who were often characterized as boring and unproductive, sometimes even strict or old-fashioned, something that made some the HSRLs as students feel demotivated (N=6). On the other hand, 3 respondents referred that traditional teachers made them feel more secure, because of the specific guidelines and the strict planning they provided.

The last distinction refers to the regional system concerning the exams that were necessary in order to continue in education. Although, most of the participants (N=33) find a way to succeed in their national or regional exams, the majority mentioned that they were not satisfied by this process, because many times it did not reflect their real competences.

Although most of the participants mentioned the traditional teaching methods, not many of them described it as meaningful for their SRL development. Therefore, no patterns that were connected with SRL can be identified in the traditional teaching methods.

The second teaching method that was mentioned, was the alternative teaching method. Within the interviews, 10 participants described that they experienced only alternative teaching methods, such as Montessori style, either in primary or secondary education. Since many of the respondents changed schools during their school life, more than half of them (N=19) said that they experienced both types, alternative and traditional teaching methods implemented by the teachers or because of the school type. In addition, it was also common that a participant had alternative teachers in a traditional school type (N=13), meaning that the teacher used different teaching methods (experiments, personal interaction etc.) than the ones that the school suggested (use of textbooks, lectures etc.).

On further analysis a main distinction was made between the teachers and the school type. The majority (N=16) of the HSRLs who indicated an alternative teaching method, referred to the teacher as the main way of implementing that kind of method. Teachers were described as fun, caring and supportive. In addition, alternative teachers were making the lesson interesting and put emphasis on interaction. One respondent particularly mentioned about the practical ways that his primary school teacher used to teach them:

“... my primary school in Vanuatu and my first 3 years of secondary school in Devon were probably what I'd say were the most influential and they had a very positive teaching style and my primary school teacher in Vanuatu was just fabulous, he was Mr Actor, he was very practical, so he'd have us like go out and shout at a wall and measure how long till the echo came back and work out the speed of sound and things like that. So it was a very sort of practical education and he taught us a lot about what numbers meant...”

In the alternative school type (N=15), many participants (N= 12) described vividly that going to an alternative school type was a positive experience and helped them achieve more and improve their self-efficacy. Three participants that attended an alternative primary school said that affected later their way of acting in school. It helped them to open up socially and practice self-driven learning.

“...I went to a school in Holland, a Jena Plan school, which is a particular type of school which is very much focused on group activities and there’s not a lot of class competing going on and I did my whole primary school there. I had a great time at school, really liked it, lots of emphasis on social interaction, never really struggled with much, there was one subject I struggled with, but it was very much self-driven learning, so you did your own assessments and things like that, so taking responsibility for your own assessments...”

Only one participant indicated that it was harder to adjust in a school with mixed age groups and different curriculum than traditional, something that made him feel incompetent.

Overall, alternative teaching methods reappeared in most participants and were found to have an impact on their lives. More specifically, the alternative teachers were noted as very influential in their school life. Based on that, the implementation of alternative teaching methods can be considered a pattern on HSRLs life.

Peer Interaction: within this category the similar ways that HSRLs interacted as students were recorded. Three main types of interaction were identified: in-class interaction, out-of-class interaction and no interaction. In most cases the participants referred to more than one type of interaction, meaning that they had both interaction in and out of class, or that they had in-class interaction in primary and more out-of-class interaction in secondary education. Table 3 displays a summary of the results of peer interaction

On the in-class interaction, participants mentioned any form of collaboration that they had in the class with classmates or simple forms of friendship in the school environment. Here, a significant number of participants (N=14) focused on school related interaction that had to do with group projects in class or providing support and feedback to one another during lessons.

“Yes and so you would sit with about 5 or 6 kids in a little group and very often they were from different years and it has all to do with that others help you because there are always people that are older and people that are younger in the same group and if there is classically taught material then you have to have the discipline if it’s not meant for you, you have to have some discipline in order to keep on working.”

Table3.*Summary of Peer Interaction results*

Types of interaction	Content	N	%
In class interaction	School related	14	37,8%
	Friendship	27	71%
Out of class interaction	School related	14	36,8%
	Friendship	33	86,8%
No interaction	By choice	7	18,4%
	Rejected from peers	2	5%

The minority of the responders (N=7) indicated that they had at most one or two persons in the class that they had friendly relationship and trusted in primary school. That changed impressively in the secondary school, where half of the participants (N=20) explained that they found interaction and friendship in class useful and necessary for their school adjustment and engagement.

Out-of-class interaction was more prevalent. In this category almost all respondents noted that they had social interaction with peers outside of the school environment. More specifically, 14 out of the 37 participants mentioned that they had school related interaction with people of the

same age. All of them explained that it was about doing homework together with peers, which was an activity characterized as fun and helpful for cognitive development. Due to the fact that school related interaction was one of the most recurring experience that contributed in their SRL skills it can be considered a possible pattern leading to the development of HSR skills.

Even more participants (N=33) reported interaction out of class in terms of friendship. Respondents explained that friends played an important role in their childhood, and even more in adolescence, although they did not mentioned specific connection with their learning skills development. They reported mostly as “playing games and hanging around”, therefore friendship was not consider impactful factor for their learning development.

Another finding was about no interacting with peers during childhood and adolescence. In this category, 9 participants distinguished 2 major aspects: no interaction by choice and no interaction because they were rejected from peers.

In no interaction by choice, 7 respondents indicated that they did not feel the need to have contact with classmates (N=3) or with children around the neighbourhood (N=4). They preferred their privacy, spend time on reading, explore nature on their own or observe people from a distance. Two of them characterized themselves as “not a group type person”. One participant noted:

“...But I remember from the time of kindergarten too that I liked to sit on the top of the tree and observe rather than being in the middle of the game...”

At the same time 2 respondents characterized themselves as shy and were afraid to get closer to peers in the primary school, because as a family they moved multiple times and changed a lot of schools. They managed to overcome this during the secondary school, because they realized that social interaction can be very productive and helpful to their school adjustment.

Although the number of participants indicating no interaction by choice was not significant, it can be marked as a pattern in HSRLs' lives.

In interaction, only 2 participants felt rejected from peers and had no interaction. They both used the term "outsider" to describe the rejection they experienced. The first participant explained that because of family movings was hard to be accepted and integrate with peers, and the second participant mentioned that was an outsider because he was an immigrant, but none of them mentioned if that helped their SRL development.

Performance: Within this category the participants answered a specific question about their performance in primary and secondary school. While the answers were between good or bad, the justification of the answers varied in most cases.

The vast majority (N=33) of the respondents stated that they had good performance in school. Only 9 of them were referring to primary school performance, while the rest focused mostly on their academic achievements in secondary school. In addition the majority of the well performing students (N=27) stated that that was because they really liked school and learning. Many students also mentioned that there were specific courses that they enjoyed more and were more motivated on succeeding. Next to that, alternative teachers indicated as a relevant aspect in participants' school performance (N=10), since the alternative teaching methods that the teachers used would made students feel more motivated and the course more interesting, fun and easy. One participant noted:

"Maths, I was struggling a bit, again for the same reason, but then in the last year at high school, 4th grade at high school, a new teacher came who explained function really well and then suddenly I was the best in class, explaining it to everyone how to do it..."

Although it is reffering to almost half of the group, there is a co-recurring between alternative teachers and school liking, which can identify as a pattern in HSRLs life.

Many respondents also noted that they were high achievers. Within 9 interviews, participants mentioned that they skipped a class or attended to special skills school, because they were ahead of their classmates. Moreover, a minority (N=6) reported that they were quite competitive and aiming for the grades. These participants spoke of learning strategies that they used to accomplish that, such as good planning and, self-studying.

On the other hand, almost half of the respondents (N=19) reported having bad performance at school at least in one subject. Most of them (N=12) stated that they did not like the subject and that made them feel demotivated and have low levels of self-efficacy. At this point, it is worth mentioning that all of the participants appeared to have a traditional teacher. A participant indicated that:

“...At that age I was very, very bad at reading, terribly bad at reading, I couldn't read and so I was always sort of somewhat reluctant in school shall we say...”

Despite the fact that there seemed to be a connection between traditional school teachers and school aversion, we cannot consider this a pattern, since it did not contribute to the development of SRL skills.

Numerous other reasons were recorded. The marital state of the parents had a significant impact for three participants, who spoke of failing in class after parents' divorce. Another relevant aspect was the learning gaps that they faced because of frequently moving houses and changing schools. Other reasons mentioned were puberty and eye problem.

It is worth mentioning that participants discussed about several activities related to school, which helped them deal with school stress or they simply enjoyed. Many respondents (N=11) considered music and playing a musical instrument as something that cleared their mind and helped them relax. At the same time, doing sports for fun also reoccurred several times. Other reasons were parental urge in doing sports and competition.

Overall, most of the participants mentioned that they experienced traditional teaching methods, although alternative teaching methods were also very common. Since most of the participants mentioned that teachers who implemented alternative teaching methods had impact on their lives by supporting and teaching them SRL strategies, this aspect can be seen as a pattern. In addition, most respondents experienced interaction with peers in and out of school content. Although friendship was the major form of interaction, school related activities, such as doing homework together with peers or talking about school, were recurring and mentioned as more impactful on their learning competences and enhancing their learning strategies. For that reason we consider that type of interaction as a pattern. Next to that, most of the participants had good performance, mostly because they liked school and learning. Alternative teachers and teaching methods were named as the reason for liking school and their performance. Due to the fact that these two aspect co-recur in the HSRLs lives, we can recognize it as a pattern. On the other hand, bad performance was often affected because of subject aversion, but no relevant patterns were identified on that. In the next section, the connection between these results and the development of SRL skills will be explained

Discussion and conclusion

The purpose of this study was to investigate the patterns in the school environment that HSRLs experienced in their childhood and adolescence. More specifically, this research aimed on identifying common experiences and similarities concerning teaching methods and peer interaction that may helped them into developing the SRL skills and becoming HSRLs. Moreover, the factors that contributed in their school performance is investigated. To explore these factors semi-structured, biographical interviews were conducted and the results are summarized and discussed below.

Teaching methods. The first research questions was about the similarities in the teaching methods that HSRLs experience in their school life. The results revealed that almost all participants experienced traditional teaching methods in different ways. Most of them reported traditional schools, meaning schools that use a “teacher-centred approach”. In a teacher-centred approach the students are taught the same materials and there is emphasis on lecturing and the use of text books under a restricted space of actions and instructions. It is easy to say that this type of teaching method is not aligned with the principles of SRL, which promotes motivation, goal setting and metacognition (Rathunde et al, 2005). On the other hand, it is argued that when direct and specific instruction are pointed and clear guidance is provided, learners can be motivated and focus their attention on selecting, integrating and evaluating their information, in order to draw conclusion more efficiently (Schraw et al, 2006). This way students can enhance their ability to self-regulate their learning. So, although in the research most participants mentioned traditional teaching methods as not effective, it could be that the use of instructions and the strict planning that was used through the text books helped into developing the SRL skills. This line of arguments can be used for both traditional schools type and teachers.

Furthermore, as it was expected the study showed that the alternative teaching methods were mentioned as more impactful to the respondents’ learning than the traditional. Participants stated that going to an alternative school type was a great experience and made them like school more. That can be explained because alternative teaching methods use more SRL strategies than traditional (Lourenço & Jones, 2006). The alternative methods emphasizes more on social development though interaction and self-awareness. In an alternative school type students learn from discovery, from their peers, and feedback. Student learn though active and experiential learning how to manage their time and how to cope with pressure (Lourenço & Jones, 2006). This implies that the use of alternative teaching methods can provide choices about the learning process to the students that are connected to their interest, or create meaningful and pleasant learning

activities which increases student's willingness to participate. In that way students practice their SRL skills of goal setting, monitoring and evaluating their performance.

Another interesting finding which can be considered a pattern is about alternative school teachers.

Many participants described their relationship with their school teacher, which was not formal.

Alternative teachers are described more fun, reachable and supportive. That made them feel more

engaged to the course and more motivated. An explanation to this claim would be that when a

teacher uses alternative teaching approaches such as group work and discussion, can provide

information in a more fun and interesting way, than lecturing and giving media presentations

(Rathunde et al, 2005). That leads to better use of learning strategies and more effective knowledge

acquisition. That is aligned with the Zimmerman's (1996) notion that says when a teachers wants

to develop SRL skills to students, the last must view their teachers as resources and less as a

threatening figure.

Peer interaction. In the next research question was about similarities in the peer interaction. Here two main categories were distinguishes: in class and out of class interaction. The findings revealed that most of the participants had interaction with classmates or friends, but not every interaction was meaningful for their learning. Although many researches argue about the importance of peer interaction in matter of friendship and learning (Wentzel, 2005; Jones et al, 2008; Wedd, 1989), this was not clear in the research. Participants indicated about their friendship but they did not think it affected their learning. A logical explanation could be that participants made a distinction about school related interaction and simply friendship, which was stated as "hanging around". In friendship there is no need to use SRL strategies or it is difficult to identify them.

On the other hand, when it comes to school related interaction, a similarity emerged. A significant number of participants mentioned that they had constructive interaction in class and outside the school environment. Regarding the in class interaction, participants mentioned about participating

in group projects, problem-solving or talking about their performance. These findings support past findings concerning interaction in small groups and the impact on the use of learning strategies (Webb, 1989). In this research it is indicated that when students interact in small groups, then they practice a lot strategies as help giving and receiving, time management and self-evaluation. All these strategies are essential for developing SRL skills. Aligned with this research, this study supports that in class interaction in school related subjects helped the participants recognize these strategies and practise them further.

An even more striking result was about out of class interaction on school related subjects. A great number of participants indicated that they had friends that they were discussing about school performance, did homework together and found answers to some questions about school. The reason is that students are more likely to use SRL strategies, such as help seeking and feedback, with friends outside school, because they feel less competitive with them and more secure to discuss school related issues. These findings are in line with the previous research of Jones et al (2007) suggesting that peer discussion and peer influence have a strong relationship with SRL and motivation.

Another interesting finding was about students who had no interaction with their peers. The participants mentioned that they did not had interaction with peers for two main reasons. First because they were rejected. Participants felt as outsider and found social interaction quite hard. That could probably had a negative impact on their SRL skills, since these participants mentioned low levels of self-efficacy and demotivated to participate in peer discussion. This notion is supported by the research of Wentzel (2005), indicating that young adolescents that experience peer rejection felt less engaged to school. In addition, these adolescents did not use goal pursuit to their academic performance. In the present study, while these findings suggest that worked opposite to developing SRL skills, the participants suggested other ways of triggering their learning. Furthermore, no interaction by choice revealed another perspective that is worth

mentioning. Seven participants indicated that they did not want to interact with peers, because they felt it was not necessary. Previous research already showed that students that do not want to interact with peers may also benefit by observing group interaction and internalizing learning strategies that others use (Webb, 1989). In the same research is described that students who tend to work alone show high levels of self-efficacy and they know they have the necessary ability and skills to learn on their own. That is aligned with the findings of this research, where participants mentioned that they had no need for peer interaction, since they were able to finding other resources of obtaining knowledge. That means that these participants had already conquered some of the SRL skills.

Performance: in the present research the similarities in the school performance and the factors that contributed are discussed. The results suggested that most of the participants had good school performance. Some of them described themselves as very competitive and used several learning strategies in order to achieve good performance, such as planning, systematic review or goal setting. This is in line with previous research suggesting that students who display SRL behaviours may achieve academic success (Zimmerman, 1990). At the same time, most participants indicated that they had good performance in school or in a specific subject because they simply liked it. This could be because of the fact that when there is preference on a subject, then the students may feel more motivated and engaged in the particular subject or activities. This is in line with Pintrich's (2004) findings. In his research he explained that motivational beliefs, such as purpose of doing a task (goal orientation), belief in competence of executing a task (self-efficacy) and belief in the importance of the task (task value beliefs), may lead to better learning achievements.

Regarding the contributors into achieving good school performance, one was named as the main source. Teachers and the alternative teaching methods they used seems to influence their performance. Many participants mentioned that they had better learning outcomes when they had teachers that were more fun or used more experiential teaching methods. This also can be

explained because students may perceive teachers as a model and try to imitate their tactics and strategies. As Zimmerman (1997) noted, the early signs of the development of SRL skills come from the observation stage. In this case, the students by observing their teacher, they enhanced SRL strategy use and translated them into academic achievements.

In addition, several participants said that they had bad performance in school or in a specific subject. Most of them indicated that they dislike school or subject. That made them feel demotivated and they believe that had negative impact in their learning. Despite that, a research of Effeney et al (2013) suggested that student who are low achievers academically, tend to prefer SRL strategies associated with social source, such as seeking assistance from teachers, peers or their parents. In line with this notion, our findings indicate that students that failed or tend to have bad performance, managed to overcome this through the use of such tactics.

Furthermore, this research showed that when it comes to formal exams, most of the participants stated they performed well on the exams, even though it was not representative of their competences. As Zimmerman, Bonner and Kovach (1997) explain, it is common for students to know material but not do well on the exams, because of external pressures, distractions or students' psychological state. But it is true that students who are well prepared and used SRL strategies are more likely to do well in an exam, than those who are not adequately prepared (Zimmerman, 1997). In this case, participants described that they were good students and their daily routine included adequate school preparation. That means that their daily use of SRL strategies, such as reviewing and efficient time management, might helped them into succeeding in school exams.

In conclusion, several patterns can be identified in the school experiences of HSRLs that contributed into becoming HSRL. These findings can be used for future research. Regarding the teaching methods, it was noted that alternative teachers and teaching methods had a significant

impact on their learning and their development of SRL skills. That can be further investigated. More specifically, further research can be conducted using a different research methods, in order to prove a casual relation between the alternative type of teaching and the development of SRL. An observational study can be a possible research design, because it can examine the relation of these teaching methods with the development of self-regulated learners. The research also concluded that school related interaction can be beneficial for the development of SRL skills in short and long term. Even though previous research emphasized that out of class interaction is more impactful to students than in class, this yields for further investigation. Following research might study the relationship between the school related interactions (doing homework, discussing about school) and the use of SRL strategies from childhood up to adulthood. Based on this study it is hypothesised that peers intersction in school-related subjects are more likely to use SRL strategies in their school and after life. A longitudinal study can be a suitable one, since it examines the correlation between the same variables by repeated observations in a long period of time. In addition, patterns were identified in the results concerning the performance in school of HSRLs. In the study was found that good performance can result from school liking. That can be further investigated, by exploring the mechanism behind the student's motivation to like school. Next to that, the following researches could study about the relationship of bad school performance and the use of SRL strategies that may lead to the development of SRL skills. A quasi-experimental study could be a suitable method to use, since the variables cannot be assigned randomly, but they need to have the characteristic of "bad performance". Finally it would be interesting for future investigation to explore personality traits in students, such as competitiveness and persistence, in the development of SRL skills. Although in this research it was not as a significant pattern, it can be interesting for further research. .

Limitations.

This study has given valuable insights in the patterns in school life histories of HSRLs. Although it contributed to the existing literature, several limitations should be taken into account when interpreting the findings. Firstly, the generalizability of the results is limited due to the nature of the sample, which is rather small and the relatively homogeneous kind of the participants, who are all from academia. Further research should involve a bigger sample and a greater variety in professional background. A second limitation of this research was the lack of control group. That would allow to compare the results and increase the reliability of the research (Campbell & Stanley, 1967). Finally, a third limitation was the use of semi-structured interviews during which the participants were asked to identify the reasons that made them HSRLs and reflect on the self-regulating strategies that may have used during their lives. Although, HSRLs have a high degree of self-awareness, the memories from the childhood may not be so clear and the judgements on their learning may not be so accurate. Future researches may use more structured interviews in order to ensure the accuracy of the statements.

Conclusion.

To conclude, the present study revealed that there are some patterns in the school experience that are co-recurring in the life of HSRLs. Based on the results the study suggested that there is a school environment which can be further investigated in respect of children's self-regulated learning development. That school environment consists of teachers who provide students with autonomy and support, give opportunities to discover knowledge and motivate them in order to reach their goals. It also promotes peers interaction and collaboration in school-related subjects.

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Appendices

Appendix 1. Online questionnaire in SurveyGizmo (sample)

Page 3. SELF-REGULATED LEARNING

Knowledge workers may regulate their learning in different ways. This section provides possible actions you may have carried out while performing a work task and/or during learning activities at work.

6. To what extent do the following statements describe your behaviour?* Please indicate how you typically behave, rather than how you think you should behave.

*This question is required

	<i>1 = not at all true</i>	<i>2 =sometimes true</i>	<i>3 = true most of the time</i>	<i>4 = always true</i>
6.1 I set personal standards for performance in my job*				
6.2 I set goals (monthly or yearly) for myself in order to direct my learning activities*				
6.3 I set realistic deadlines for learning when I have identified a learning need*				
6.4 I ask myself questions about each learning task before I begin*				
6.5 I think of several ways to solve a problem and choose the best one*				
6.6 When planning my learning, I adapt strategies that have worked in the past*				
6.7 I use specific strategies for different types of things I need to learn*				
6.8 I think I will be able to use what I learn in this job in the future*				
6.9 It is important for me to learn new things in this job*				

Appendix 2. Draft version of the coding scheme.

SCHOOL EXPERIENCE				
MAIN LABELS	CATEGORIES	EMERGED LABELS	DEFINITION	EXAMPLE
Teaching Methods	Traditional Teaching Methods (A Teacher-centered approach, aiming on grading and graduation of the students. Students are matched in class by age or ability and are taught the same material, which is based on textbooks and lectures. The curriculum is common for students of the same age, regardless ability or interest. Focuses on individual learning with little attention to social development.)	Teachers	Teachers are identified as the persons who implement the traditional teaching methods	...and also I had teachers who were like old fashioned teachers and they didn't make it very active to understand why it is how it is. So they were not very good at conveying the usefulness of learning those things.
		School type	The school is implementing a traditional teaching philosophy. It is most of the times identified as typical, normal or local schools.	We only had public schools and I don't think there was any special approach to learning, it was mostly memorising and reproduction of knowledge I would say, especially in primary school, I think our education was very influenced by the Russian approach to education. So mostly memorising things, unless you had to solve problems like maths and physics
		School/regional system	Traditional teaching tactics that are implemented in a regional area, such as CITO exams	...in Germany we have a grading system from 1 which is the best grade and 6 the worst and if you have let's say 4 is the minimum average you have to have to pass a test, class or anything else, if you have a minimum of 4 as an average on everything you keep on moving on, no matter what. I had an average of 1 point something or 2 point something, but I would have not been able to move on from 11 th grade to 12 th grade because there's another rule that says you cannot have a 5 in more than 2 subjects and my 3 subjects

				were maths, chemistry and physics.
	<p>Alternative Teaching Methods (A student-centered approach that emphasize in small and multi-age class sizes, close relationships between students and teachers and a sense of community. Students dynamically grouped by interest or ability for each project or subject, with the possibility of different groups each hour of the day. Significant attention to social development, including teamwork, interpersonal relationships, and self-awareness. It emphasizes on student-led knowledge discovery. Teachers provide students opportunities for analysing and evaluating facts, empowering this way the critical thinking.)</p>	<p>Teachers</p>	<p>Teachers are identified as the persons who implement the alternative teaching methods</p>	<p>... my primary school in Vanuatu and my first 3 years of secondary school in Devon were probably what I'd say were the most influential and they had a very positive teaching style and my primary school teacher in Vanuatu was just fabulous, he was Mr Actor, he was very practical, so he'd have us like go out and shout at a wall and measure how long till the echo came back and work out the speed of sound and things like that. So it was a very sort of practical education and he taught us a lot about what numbers meant..."</p>
		<p>School type</p>	<p>The school is identified as implementing an alternative teaching philosophy. Sometimes the name of the philosopher is mentionrd in order to indicate the alternative method (ex. Montessori, Reggio Emilia)</p>	<p>...So then I went to Montessori and I did find the same atmosphere I had found in primary school, which was much more supportive and much more open and emphasis on creative stuff and had more student engagement as well in terms of learning. Plus it was self driven and I do quite well with self driven stuff, I don't necessarily like to be told what to do. So I think I do better given a task and just get on with it and then I definitely performed better then.</p>
<p>Peer interaction</p>	<p>In class Interaction (Classmates are interacting inside class. Discussions, opinions and beliefs are being used to learn how to work in a group more efficiently.)</p>	<p>School related</p>	<p>The peers' interaction in the class or school area (discussions, project groups etc) is about issues that are related to school</p>	<p>...I generally studied with other kids in my class, just to make homework and so on because it's much more fun to do it with other people than to do it on your own.</p>
		<p>Peers friendship</p>	<p>The peers' interaction in the class or school</p>	<p>... Well in elementary school I think it would have been just whoever</p>

			area has a free identity. It is about friendship, having fun and finding support	was in my class because there was only one girl from my neighbourhood who was in the same school as me, just because of our ages. So our chums as such were just whoever were in our class and playing together at the break time, but I didn't see these people outside of school really, it was just at school.
	<p>Out-of-class Interaction (Peers are interacting out of the class. Discussions, opinions and beliefs are being used to learn how to work in a group more efficiently.)</p>	School related	The peers' interaction outside of school area is about issues that are related to school or school activities (doing homework together, talking about school performance etc)	...But it was my friends who actually rescued me because they knew I couldn't study at home and I had friends who actually took me to their house and arranged with me to have time with their Mum when they weren't in, to sit and study in the house because I needed science because I knew I wanted to be a nurse, that's all I ever wanted to be since I was 4 and so I knew the subjects I needed for that and my friends big brother was a doctor and he knew I was keen to be a nurse and felt I had those qualities, but he could see because of the situation at home I was floundering in the subjects that I needed and so they all kind of rallied round and helped me and I really don't know where I'd be today without them because although I had the motivation, I didn't have the infrastructure, I couldn't create the infrastructure myself.
		Peers friendship	The peers' interaction out of school area is about having fun and hanging around.	...So I didn't do any homework with him, that's for sure! But you know just like hang out with him, not doing anything wrong, just playing, I remember

				playing with toy soldiers and stuff like that. But then I had some other school friends, but certainly not doing homework.
	No Interaction (Individual finds difficult or useless working in groups for school activities (ex. Homework))	By choice	The individual choose not to interact with peers in school or out of school area.	...But I remember from the time of kindergarten too that I liked to sit on the top of the tree and observe rather than being in the middle of the game...”
		Rejected	The individuals is rejected from peers in or out of school area	...whereas when I was moving from, say coming back from Libya and moving to a village school again, you’re the outsider with the funny accent, who hasn’t been doing the same stuff as us, doesn’t have any shared experiences. So I think from a social point of view that was the largely difficult thing about moving schools in primary school.
School Performance	Good Performance (The individual has succeed on the educational goals and standards set out by school (mostly by good grading))	School/subject liking	The individual is succeeding in school because there is a natural interest in school or in a specific subject	...Yeah in secondary school certainly, I really enjoyed sciences and I really enjoyed modern languages. So if I think about my subject choices, I chose my sciences around the fact that I needed them to get into nursing and I wanted them to be good and I was quite good at them.
		Other	Any other reason that may contributed into achieving good school performance (parents urge, obligation, competitive character etc)	...It’s very interesting because I lived with him for the first year after the separation and then I moved in with my Mum after the 2 nd year of separation when I also changed to a new school, to the Montessori school where I suddenly started doing really well and his impression was that I was doing really well to spite

				him, which is very strange.
	Bad Performance (The individual has not succeed on the educational goals and standards set out by school (bad grading))	School/subject aversion	The individual is failing in school or in a specific subject because he/she does not like it.	...At that age I was very, very bad at reading, terribly bad at reading, I couldn't read and so I was always sort of somewhat reluctant in school shall we say.
		Other	Any other reason that may affected school or subject failure (parent's marital state, health issues, age etc)	...I stayed in that school until 4 th year when my parents divorced and I failed the whole year, while I was academically quite good emotionally it had a large impact on how I learned.

Appendix 3. Overview of the interview summaries.

	TEACHING METHODS						PEER INTERACTION						PERFORMANCE			
	ALTERNATIVE METHODS			TRADITIONAL METHODS			IN CLASS		OUT-OF-CLASS		NO INTERACTION		GOOD		BAD	
	Teacher	School Type	School system	Teacher	School Type	School system	School Related	Friendship	School Related	Friendship	By Choice	Rejected	School Inclination	Other	School Aversion	Other
1	1	1	0	0	0	0	1	1	1	1	0	0	1	0	0	0
2	1	1	0	0	1	0	0	0	1	1	1	0	1	1	1	0
3	1	0	0	0	1	1	1	1	0	1	0	0	0	1	0	1
4	0	0	0	1	0	0	0	1	0	1	0	0	0	1	0	1
5	0	0	0	1	1	0	1	1	1	1	0	0	1	1	0	0
6	1	0	0	1	1	0	0	0	1	1	0	0	1	1	0	0
7	0	1	0	1	0	0	1	1	0	1	0	0	1	1	0	1
8	0	1	0	1	1	1	1	1	1	1	0	0	1	1	1	1
9	0	1	0	1	1	0	0	1	0	1	0	1	1	1	0	0
10	0	0	0	1	1	1	1	1	1	1	0	0	1	1	0	0
12	1	0	0	0	1	0	0	0	0	0	1	0	0	1	1	1
13	0	0	0	1	1	1	1	0	0	1	0	0	1	1	0	0
14	0	0	0	0	0	0	0	0	1	1	0	0	1	1	0	0
15	1	1	0	0	1	0	0	0	0	0	1	0	1	0	0	0
16	1	1	0	0	1	0	0	1	0	1	0	0	0	1	1	0
17	1	1	0	1	1	0	0	1	1	1	1	0	0	1	0	0
18	1	0	0	1	1	0	1	0	0	1	1	0	1	0	1	0
19	1	1	0	1	1	0	0	1	0	1	0	0	1	1	0	0
20	0	0	0	0	1	0	0	1	1	1	0	0	1	0	1	0
21	0	0	0	0	1	0	1	1	1	1	0	0	0	0	1	0
22	0	0	0	0	1	0	0	1	0	1	0	0	1	1	1	0
23	0	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0
24	0	1	0	0	1	0	0	0	0	0	0	0	1	0	0	0
25	0	0	0	0	1	0	0	0	0	1	1	0	0	0	1	0
26	1	1	0	0	1	0	0	1	0	1	0	0	0	1	0	0
27	1	0	0	0	1	0	0	1	0	1	0	0	1	0	0	0
28	0	1	0	1	1	0	1	1	1	1	0	0	1	0	0	1
29	0	1	0	0	1	0	0	0	0	0	0	0	1	1	1	1
30	0	0	0	0	1	0	0	1	0	1	0	0	1	1	0	1
31	0	0	0	0	1	0	0	1	0	1	0	0	1	1	0	0
32	1	1	0	1	1	1	1	1	1	1	0	0	0	0	0	1
33	1	0	0	1	1	1	1	1	0	1	1	0	1	0	0	0
34	0	0	0	1	1	1	1	1	1	1	0	0	0	0	0	1
35	1	0	0	0	0	1	0	1	0	1	0	0	0	1	0	1

36	0	1	0	1	1	1	0	1	0	1	0	0	1	0	1	0
37	0	0	0	0	1	0	0	0	0	1	0	1	1	1	0	0
38	1	0	0	0	0	0	0	1	1	1	0	0	1	0	0	0
39	0	0	0	0	1	1	1	1	0	0	0	0	1	0	0	0
total	16	15	0	16	32	10	13	27	14	33	7	2	27	22	11	11