

Smart Phones in Schools

In What Ways Can Coaching Empower Students to Make a Valid Judgement on When and How to Use Their Smart Phone?

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Over the last few decades, smart phones have become indispensable in people's everyday lives. The trend has also penetrated the classroom, where students use their smart phones from an early age. Excessive use of smart phones for purposes that are not directly educational in schools is an issue of concern to both teachers and students. The research literature following this trend has mainly focused on the negative effects of mobile devices, for example, to what extent does smart phone overuse distract students and cause excessive multi-tasking and phubbing. There is little research on how schools, teachers and students can meet these pedagogical challenges in the classroom, while making the most of mobile devices for teaching and learning. As an alternative to a more top-down restrictive administrative approach, like investing in storage units in the classroom or banning smart phones entirely from schools, we discuss a more bottom-up oriented approach. We want to empower students to make valid judgements on when and how to use their smart phones in school by means of coaching. In this article, we present a preliminary qualitative study, where a group of Norwegian secondary school students volunteered for a coaching session after having gathered and analysed data about their own smart phone user patterns as part of the lesson plan in the class "French as a Foreign Language" (B2). The results suggest that coaching can create cognitive and emotional change and may have a positive influence on students' smart phone behaviour based on their own judgement on the use of time and

attention in schools. Further research is needed, but the findings show that a bottom-up strategy is an alternative to the existing top-down administrative approach to tackle smart phone overuse.

Keywords: technology addiction; multitasking; coaching; smart phones; data tracking

Digitalisation is rapidly penetrating the educational domain, offering new ways of teaching and learning, while disrupting the traditional classroom on the way (Krokan 2012; November 2009; Prensky 2010). Following this trend, the students' use of mobile devices in school raises concerns among teachers, parents and researchers (Grinols & Rajesh 2014; Nass 2013; Staksrud & Livingstone 2009). Students tend to use their mobile devices to maintain their social relations, perform various tasks and seek information, but also as a distractor when they are bored, seek adventure and engage in anti-social behaviour, with the consequences that may impact on their academic achievement and personal lives.

Schools tend to use traditional methods to meet these challenges. For example, while teachers are struggling to make pedagogical sense of new technologies in class (Haugsbakken & Langseth 2014; Krumsvik 2014), schools ban smart phones from school premises or invest in storage units, often called "smart phone hotels", in the classrooms to deal with the disruptive consequences of the new technologies (Fitze, Haugsbakk & Nordkvelle 2017). We argue that the traditional methods are somewhat counterproductive, when the goal is to prepare students for a digitalised working life. An alternative to banning smart phones from the classroom or the school premises is to empower the students to control their use of the smart phone themselves. Taking personal control over the smart phone can give students the opportunity to organize their time in better ways and practice mindful attention when working towards both short and long-term goals (Rheingold 2012). The latter, is a strategy that

embraces the possibilities that mobile devices add to teaching and learning in school and may serve students well in all aspects of their life.

In this article, we discuss what we have called the “teacher’s mobile device dilemma” – ban or restrict versus use and possibly misuse mobile devices in the classroom. We argue that involving the students in ways that will empower them to monitor and control their own activity on their smart phones is part of the solution to the dilemma. Our role as researchers was pedagogical in the sense that one of us also taught the class in question previous to, during and after the research period and that we are both trained in coaching. Our pedagogical approach is based on coaching, which is a method that has the potential to contribute to making students find inner motivation to create and follow a strategy that will help them reach their personal goals, thus supporting the student in his or her personal and educational development. Coaching is an emerging research field that has been successfully used in health care, sports and private business to make performers stay on target, enhance performance, self-esteem and intrinsic motivation (Horn, 2008). Very little research has been conducted on the use and gains from coaching in formal education (COACH 2017). The research question that we intend to answer is; *in what ways can coaching empower students to make valid judgement on when and how to use their smart phones in school?*

The article intends to contribute to the understanding of the role of coaching in school and student empowerment in the digital age. According to Biesta (2011), student learning is related to well-being and the alignment of the three functions of education: *qualification, socialization* and *subjectification*, where the latter refers to how the individual student makes sense of and experiences formal education in terms of possibilities and restrictions of personal goals. Stolz and Biesta (2018, 62) further relate the dynamics of education to the domain of meaning and interpretation. We argue that coaching may have the potential to create meaning and empower students in the three functions and dynamics of education in combination with other pedagogical measures.

The article is based on a qualitative study at a large secondary school located in a Norwegian urban area, where we conducted a small-scale preliminary investigation in the French as a Foreign Language classroom. The data collection was embedded in the lesson plan, and the coaching sessions were conducted in Norwegian mainly outside class hours. The subject and the class were selected out of convenience, because one of the researchers actually taught French in the class in spring 2018, when the research took place.

In the following, we first present the “teacher’s mobile device dilemma” and some findings on the consequences of multitasking and phubbing in school. Second, we introduce coaching, the GROW-model and some core coaching techniques. Third, we present our methodological approach and our analysis and preliminary findings, before we answer the research question and conclude.

The Teacher’s Mobile Device Dilemma

Over the last decades, teachers have witnessed the steady growth of technological infrastructure and mobile devices in school. On the one hand, smart phones render information readily available at all times and allow for digital production and collaboration to flow smoothly (Haugsbakken 2016; Krokan 2012; Krumsvik 2014). At the policy level, the European Council (EC 2017) calls for training and education systems to be fit for the digital age. Recognizing that integrating technology in education remains limited and lags behind, the European Commission (European Commission 2018, 22), emphasizes the benefits of online collaboration, access to and use of digital technologies and new learning tools to close the gap between students from high and low socioeconomic backgrounds. The European Commission also views new technology as a way to personalise learning to increase motivation by focusing on individual learners. They also state that not all educators have the competences and confidence to use digital tools to support their teaching. The policy is reflected in the curricula in the EC member states. In Norway for

example, teachers are instructed to develop students' digital competences across the curriculum. Teacher education is, however, lagging behind when it comes to implementing ICT in their pedagogy (Røkenes 2016). Consequently, it is still to a large extent up to the individual teachers to figure out how the smart phone can support the learning processes in their subjects in Norway.

On the other hand, it can be argued that mobile devices are time consuming attention magnets. Time and attention are limited human resources, which may impede personal growth when used mundanely, off topic and directed at non-curricular activities in schools (Nass 2013; Rheingold 2012; Staksrud & Livingstone 2009). Researchers have come up with two concepts that explain and describe the overuse of mobile devices. *Phubbing*, which Karadağ *et al.* (2015) describe as “an individual looking at his or her mobile phone during a conversation with other individuals, dealing with the mobile phone and escaping from interpersonal communication”, is a detriment to the development of social relations and social learning. In their study, they investigated 409 university students. They found that there is an increasing tendency to use mobile phones, and that the tendency to use for example SMS, social media, cameras, games and the Internet on their smart phones, prepares the basis for an addiction.

The other concept, *multitasking*, which is defined by Ophir, Nass and Wagner (2009) as “a person's consumption of more than one item or stream of content at the same time”, constitutes a cognitive challenge and a possible addiction with serious consequences for learning. According to Ophir *et al.* (2009), the human cognition is ill suited to attend to multiple input streams and simultaneously performing multiple tasks or switching from one content to another. There is, in other words, a cognitive cost attached each time the focus of attention changes. They also found that heavy multitaskers are easily distracted by irrelevant external stimuli and irrelevant memories and have a reduced ability to filter out

irrelevant information when performing a written task. In one of his lectures at Stanford, Nass (2013) concluded that multitasking is affecting the way we think and may impede performance in education. The new trends in media – offering many pieces of information at one time, the new culture of media use – using media everywhere, and the fact that media steals time from non-media – time not being used to build human relations in face-to-face interaction, is a cause for alarm. Hence, it is well documented why teachers are often struggling to direct students' attention away from distracting content on their mobile devices to the content that is being taught in class.

Consequently, teachers have to balance the use of mobile devices in the classroom. On the one hand, students should learn to use their mobile devices smartly to learn and work. On the other hand, students should learn to control their use of mobile devices to reduce multitasking and phubbing to avoid cognitive overload and craving for a constant stream of information, reminders, likes and social feedback, which may distract them from learning in school.

How to Solve the Teacher's Mobile Device Dilemma?

One top-down solution to this pedagogical dilemma is to restrict the use of smart phones in school, which is the case when schools invest in storage devices or ban them all together. Beland and Murphy (2016) compared the exam results at 91 schools in the UK from 2001–2013 and found that British students performed significantly better when school authorities had banned smart phones from the classroom prior to the exams. Low achievers especially benefitted from the ban in the study. The study does not take into account what the result would be if the smart phones were used as a learning tool. Introducing restrictions on the use of smart phones may, however, seem short sighted and not suited to prepare students for a technology savvy (working) life. For teachers, who

are not digitally competent, banning mobile devices may also be an incentive to opt-out of the digital paradigm shift.

According to a review article on the impact of mobile applications in learning strategies by Jeng, Wu, Huang, Tan and Yang (2010), mobile devices provide users with *situated contexts* for learning and *ubiquitous mobility*. For example, situated contexts refer to the use of technology such as an application, camera, GPS, or a platform that may trigger the use of authentic learning materials and actions that can be provided by these technologies. The latter implies that users can get access to information, learn in the outside world and connect to other peers and form networks during their learning activities. When schools ban smart phones, students are missing out on these opportunities and are then left to make their own judgements on where and how to use their own smart phone.

In this article, it is not our goal to address the potential lack of digital competence to support students' learning in school. Suffice to say that teachers' professional digital competence is a prerequisite for students using mobile devices for learning in class. Instead, we refer to Langseth, Jacobsen and Haugsbakken's (2018) study about how educational cultures can develop digital competency, and to Furberg and Lund's (2016) study concerning professional digital competence in school.

The GROW-Model in Coaching

Educational coaching is a conversation designed to empower students in ways that can motivate them to take control over their time and attention to support their learning and help them reach their educational goals. It is different from mentoring (c.f. formative assessment) in the sense that the coach, does not define goals or learning objectives, pass judgement or instruct the student (COACH 2017). Educational coaching bears many similarities with well-established qualitative research interview techniques, which Kvale (1983) outlines in twelve aspects:

It is 1) centered on the interviewee's life-world; 2) seeks to understand the meaning of phenomena in his life-world; it is 3) qualitative, 4) descriptive, and 5) specific; it is 6) presuppositionless; it is 7) focused on certain themes; it is open for 8) ambiguities, and 9) changes; it depends upon the 10) sensitivity of the interviewer; it takes place in 11) an intrapersonal interaction, and it may be 12) a positive experience. (Kvale 1983, 174)

There is, however, a strong emphasis on behavioural action as well as cognitive and emotional change rooted in the individual in coaching. Successful coaching must therefore lead to change and the goal is always set by the 'coachee'. It is about meeting the student on his or her terms without a second agenda (Ives 2008), which is not the case in interviews.

The GROW-model was created by Sir John Whitmore and colleagues in the 1980s. The acronym GROW is the result of their study of a series of successful transformational coaching sessions in sports, where they identified four key stages in a model (Whitmore 2009). GROW is an acronym for the following concepts: Goal, Reality, Options and Will. In an educational context, the model can be described by a set of questions:

Goal – What do you want?

Reality – What is happening now?

Options – What could you do from here?

Will – What will you do now?

Goal refers to students' own aspirations (in school) and can be described as internal representations of desired states or outcomes (Grant 2012). It follows that students' goals do not necessarily align with formal educational goals set by the authorities.

Reality refers to a student's current situation and beliefs, which have arisen through experience (in school). According to Rodriguez, Bollen

and Ahn (2016), “each individual is endowed with a network of interacting beliefs that evolves through interaction with other individuals in a social network. The adoption of beliefs is affected by both internal coherence and social conformity” (op. cit, 1). In a study on covert discrimination, Langseth (2015) found that social categorisation, stereotyping and prejudice influence teachers’ and students’ behaviour patterns in education, and that this phenomenon can be related to studies on motivation, where a *fixed mind set* ascribes certain fixed qualities to an individual, whereas a *growth mind set* sees the potential of growth in any person, provided there is involvement and persistence in the learning processes involved (Dweck 2006). It follows that students’ beliefs and perception of reality may not be as seen by others, for example teachers. Reality should be explored in terms of actions already taken, past results, previous experience, factual information and sensory and emotional information in the coaching session.

Options refer to a student’s possibilities and the resources that are available to him or her. According to Basu and Savani (2017), people are more likely to choose the objectively best option when they view options together rather than one at a time. It follows that students may choose better options when they explore and reflect verbally upon their options in one session, for example a coaching session. Teachers asking questions and silencing are at the core of exploring a student’s possible options. Options should also be prioritised and selected by the student.

Will refers to actions the students want to take to achieve their (personal or) professional goals. Deci, Vallerand, Pelletier and Ryan (1991) found that in self-determination theories, “motivation, performance, and development will be maximized within social contexts that provide people the opportunity to satisfy their basic psychological needs for competence, relatedness, and autonomy” (327). Furthermore, “Opportunities to satisfy any of these three needs contribute to people being motivated (as opposed to amotivated); however, opportunities to satisfy the need

for autonomy are necessary for people to be self-determined rather than controlled” (328). It follows that students themselves should decide upon their own actions, consider potential barriers and describe how they will know that they have reached their goal. Their level of commitment may also be self-rated on a Likert scale (1-10). Each coaching session, usually lasting from 30 - 60 minutes, may be followed by skills practice, if that is relevant. The GROW model is aligned with established educational research on motivation, teaching and learning and interview methods.

While the GROW model has been used successfully in sports and business coaching, the authors believe that some adaptations need to be made to make it suitable for educational contexts. In particular the authors recommend the two additions to the GROW model. These are Achievement and Measurement, where Achievement refers to what you have learned and where Measurement –refers to how you have reached your goals. These concepts are in line with assessment for learning in schools.

Core Coaching Techniques

The coaching techniques in the GROW-model are based on three common features: *emphatic listening*, *effective questioning* and *clean language*. Listening is a basic competence in coaching. Emphatic listening is about building rapport and trust to communicate well. According to Argyle *et al.* (1970), the meaning of a message, or the meta message is beyond the words, involving voice – tempo, speed, volume, tone and timbre – and physiology – body language, posture, gesture, facial expressions and breathing. It follows that listening is a complex and demanding process.

Questioning is a non-directive coaching technique that intends to raise awareness, look for repeating patterns and generate an understanding for such patterns so that they can transform themselves into more useful ways of being and doing. The questions are open and posed to create reflection and a deeper understanding of what can be achieved and

how. The questions are designed to explore values and the belief system, and the focus is on the coachee's goal and always directed towards the future. The technique is used in research interviews, psychotherapy and coaching and can also be used as a learning tool.

Clean language is a set of questions developed by David Grove in the 1980s. Clean Language combines four elements of communication: syntax, wording, vocal qualities, and non-verbals (Lawley & Thompkins 2000). The clean language questions are designed to reduce any influence from the coach's beliefs and assumptions about the coachee and the world, and avoid using the coach's own vocabulary, interpretations or assumptions. The questions are designed to direct the coachee's attention to some aspects of his experiences, as expressed in his own words and non-verbal expressions. For example, if the student says: "Writing in French is challenging", the coach must refrain from interpreting this as either negative or positive, and continue by using the student's own words: "What kind of 'challenging' is that?" It follows, that clean language questioning invites the coachee to attend to particular aspects of his inner world, while being influenced in the direction of his process of change, sometimes through covert suggestions (Vanson 2015), as in "If you were to use Google Translate on your smart phone less when you are writing in French, what would that be like?". The concept of being clean also resides in the intention of the coach (Lawley & Thompkins 2000).

Coaching, an Emerging Research Field

The support for coaching as an emerging field borrows from a range of disciplines, including neuroscience, psychotherapy, psychology and education. The term lacks a common definition, and in a review of the coaching literature (COACH 2017), the research partners in the Erasmus+ COACH-project found that current definitions of coaching are often self-referential, or outcome based as in "Unlocking people's potential to maximise their own performance" (Whitmore 2009, 10), or

“partnering with clients in a thought-provoking and creative process that inspires them to maximize their personal and professional potential” (ICF 2017). This leaves it unclear as to what falls within and without these definitions.

In recent years, there has been a strong move towards the academisation of the discipline and practices. These are positive indicators of a movement, which serves to establish coaching as a discipline in its own right (COACH 2017). The positive evidence of coaching is, however, more prevalent in environments with strong organisational support for coaching and where the coaching strategy is well aligned and integrated with the organisational goals. As for the benefits of coaching in schools, the reviewed literature on teachers with coaching skills is in general positive:

It is clear from research evidence that coaching practices have a number of effects which are broadly seen as positive. [...] Research literature describes clear themes of organisational benefit which emerge in the form of; increased reflectivity, stronger cultures of collaboration, sharing of knowledge and greater engagement with professional development. At individual level, coaches are shown to have developed greater skills in listening, communication and interpersonal relationships. (COACH 2017, 13)

A brief review of the research literature from areas other than the educational sector and where coaching is used to enhance performance (Gallwey 2000; Wolever *et al.* 2013), sheds light on our argument. One of the first to do so is Timothy Gallwey, who started out as a successful tennis coach and moved on to coach staff at corporate businesses like Apple, AT&T, the Coca Cola Company and Rolls Royce. In *The inner game of work*, Gallwey describes coaching as “certain principles in which an individual uses non-judgmental observations of critical variables, with the purpose of being accurate about these observations. If the observations

are accurate, the person's body will adjust and correct automatically to achieve best performance" (Gallwey 2000, 27). He concludes that goal-oriented development and achievement is linked to mental processes, involving emotions as well as knowledge and skills, and that coaching is about helping performers to learn or to transform goals into action, rather than teaching them.

The review of the literature aligns with general educational functions (Biesta 2011) and suggest that coaching techniques may add to the teachers' pedagogical tool box if they master the techniques and strictly deal with the continuum from the present to the future and do not involve the past, which is the domain of therapy. If teachers obtain increased reflectivity, stronger cultures of collaboration, sharing of knowledge, greater engagement with professional development, develop better listening skills, communication and interpersonal relationships (COACH 2017), coaching is aligned with competences that are valued in schools and a sustainable, democratic society for the future.

Methodological Approach

This is a case study (Cresswell 2012) that was conducted within the scope of the Erasmus+ COACH project (COACH 2017) and developed through six phases. According to Yin (2014, 16), a case study can be defined as "an empirical inquiry that investigates a contemporary phenomenon (the 'case') in depth and within its real-world context". Main methods in the collection of data are interviews, data tracking on applications (Moment app), self-reported student data, notes from coaching sessions and a survey. Using qualitative data, the research design intends to shed some light on what students think about their own smart phone use and suggest a way forward that supports the use of new technologies in school. In doing so, we answer our research question: In what ways can coaching empower students to make valid judgement on when and how to use their smart phone?

In the first phase, we describe how 20 teachers at the school in question developed their competences in coaching. From September 2015 to August 2017, they participated in the Erasmus+ COACH - Coaching schools to face change ahead – project (EC 2017), where 100 European teachers were professionally trained in coaching techniques to enhance performance and well-being in schools in a 130-hour blended learning MOOC course. Simultaneously, the project partners conducted research on the coaching activities (COACH 2017). From May to June 2017, 10 Norwegian teachers passed a theoretical and practical exam provided by the Performance Solution Ltd. and completed a 30-hour additional campus course in team coaching funded by the school and run by a professional Norwegian coach to reach the International Coaching Federation-standards for accreditation (ICF). The teachers developed a common vision and a strategy for taking coaching into the local school context during the course. An overview of the two phases is presented in Table 1.

Phases	Participants & timespan	Providers
Level 1	100* European teachers Sept. 2015- Aug. 2017 * 20 are Norwegians and four of them are also teacher educators.	Erasmus+ School COACH-project partners (University of Northumbria, 3S research Laboratory, the Performane Solution ltd., Associazione Professionale Un ivoerso CLIL and 3 secondary schools)
Level 2	10** Norwegian teachers 24-27 June 2017 ** 10 of the 20 Norwegian teachers	Norwegian ICF-accredited coach in collaboration with the Performance solution ltd project partner and the Norwegian secondary school.

Table 1. Overview of the two levels in the Erasmus + COACH-project.

The second phase took place in January 2018 prior to the intervention in the classroom. During this phase we conducted four short interviews (20minutes in length) with four (n=4) randomly selected teachers to

understand how teachers experienced the smart phone hotel policy at the school. This was critical to informing the researchers about the current smart phone policy interpretation and use in the school.

In the third phase, which lasted for four weeks (16 lessons) in February 2018, we sent a letter of invitation to the 15 students (N=15) (17-year-olds) and their parents, where we explained that we wanted to involve the students in research on their smart phone use and offer coaching. All students agreed to participate. The students were then introduced to the lesson plan, containing learning objectives for: content, language and structure, in line with the curriculum for French, level 2 (B1/B2) year two at upper secondary level. The design involved learning how to gather, visualize and talk about data (tables), compare and contrast the data in a classroom dialogue (comparative and superlative adjectives) and reflect upon their own smart phone use in a written assignment, all in French. In this phase, the students downloaded the Moment app and tracked their own smart phone use for one week from Monday to Friday (24 hours/5 days). They also collected user data from one day (0815h-1540h) at school. They manually registered the number of apps they used, for how long, how many single entries, as well as subject or non-subject related uses. The data they collected was intended to create awareness of the students' smart phone user patterns, develop their inner motivation for change and prepare them for a coaching session. Simultaneously, they discussed, compared and reflected on the collected data in the foreign language to reach the learning objectives. They were also given feedback from the teacher and peers on the reflective texts. Learning how to talk about statistics and reflect on values in French was challenging, but a realistic and motivating task of value to them, considering the level of activity in the class.

In the fourth phase, which took place in early March 2018, we asked for volunteers for coaching sessions outside class-hours to reflect upon their smart phone use. Four students (n=4) volunteered to participate,

and they were coached twice for 30 minutes right after school (n=2) and in the evening (n=2), according to their preferences within two weeks.

In the fifth phase, which took place in one lesson in late May 2018, the 15 students used the app to collect user data once more (24hours/5days). They also answered a 17 question-survey about their previous (February) and present (May) smart phone user pattern, as well as their attitude to and experience with coaching. The survey was conducted in Norwegian in order not to limit their level of reflection. The 15 students who participated, but did not volunteer for coaching sessions, provided useful comparable background data in the analysis. The anonymity of the students was secured by providing the data they shared (XL-sheet and Forms in Office 365) with individually selected symbols. An overview of the various phases and associated data collection methods in the classroom is rendered in Table 2.

Step	Data collection design	Students	Objective
1	Letter of invitation to parents/students	15	Legal procedure for research
2	Tracking digital user pattern with an app from Monday to Friday (24/5)	15	Disclose student digital user pattern (use of time and focus of attention)
3	Tracking smart phone use for 1 day at school. Reflection on the data collection	15	Reveal more detailed data. Student reflection on the user data in class and in written text.
4	Two voluntary coaching sessions à 30 minutes within three weeks.	4	Explore student experiences with coaching. Empower students to define goals for smart phone use in school.
5	Survey consisting of 17 questions, two months afterwards.	15	Explore attitude to coaching, experience with coaching and judgement on students' own smart phone user patterns.

Table 2. Overview of the data collection in this study.

In the sixth phase, the teachers analysed the collected data and decided on further actions. The data was analysed through triangulation in several rounds to account for reliability. According to O'Donoghue and Punch (2003, 78), triangulation is a "method of cross-checking data from multiple sources to search for regularities in the research data" to answer the research question. In this case study, the triangulation of the data served to 1) discover existing attitudes to smart phone hotels, 2) discover students' judgement of their own smart phone user patterns and detect changes in their use of time and attention to the smart phone in school, 3) to discover students' experience with and attitude to coaching, all in order to answer the research question. Finally, 4) to decide upon how to take coaching further in the school. As mentioned, the design of this study also fulfilled a pedagogical purpose in the Foreign Language classroom.

The overall methodological approach in this study may be described as Action research. According to Creswell (2012) and Creswell and Plano Clark (2011), action research is suitable when research methods are mixed to answer a research question and develop new insights. Our reason for describing this study as action research is the design that evolved along the way. Based on accumulated knowledge of the potential of coaching in education (Erasmus+ COACH project) and experiences with (mis) use of smart phones in the school, we wanted to explore and understand how we could face the teachers' mobile device dilemma and maintain a digital learning environment in the classroom through a series of steps that involved coaching. We also wanted to understand how coaching could be used in future learning contexts.

Data Analysis

In the following, we will present our data analysis concerning the teachers' existing attitudes to the smart phone hotel policy at the school, the students' judgement on their own smart phone use and their judgement on coaching and the coaching experience.

Existing Attitudes to the Smart Phone Hotel Policy

In the interviews with the teachers, we identified many ways that they used the smart phone hotels. Their smart phone hotel use varied depending on the individual classes and the different study programs and beliefs that the teachers had about using smart phones in class. For example, one teacher followed the school's smart phone hotel policy in one program, but sometimes forgot to enforce the rules. She argued that since all students had their own laptops, "it is more problematic that the students are using the laptop to do things that are not relevant for school than that they have access to their smart phones in class". In another class, she believed that the students used their mobile devices for academic purposes and consequently, she did not enforce the use of the smart phone hotel. Another teacher explained that she had welcomed the smart phone hotel initiative. Reflecting on the practice, she concluded that "enforcing the policy is frustrating and very time consuming in the beginning of every lesson". A third teacher was against the policy. She had never used the smart phone hotels and believed that smart phones were useful tools for learning. The interviews generally confirmed that the teachers were faced with a mobile device dilemma. In the survey, 12 of the 15 students reported having no or very limited experience with teachers using the smart phone hotels in the school. None of the students believed it would help them concentrate better at school and 6 students reported that they became stressed when the smart phone hotel was used.

The Students’ Judgment on Their Own Smart Phone Use

The data collected by the students show their smart phone user patterns. Table 3 displays compiled user data among the 15 students in the class and provided the students with comparable data to reflect upon. The average time spent on the smart phone is about 20 hours per week during five school days and four hours per day at school. The self-reported time spent on subject-related work during one day at school was 18 minutes on average, ranging from zero to 40 minutes. The overview shows predominantly non-subject related uses.

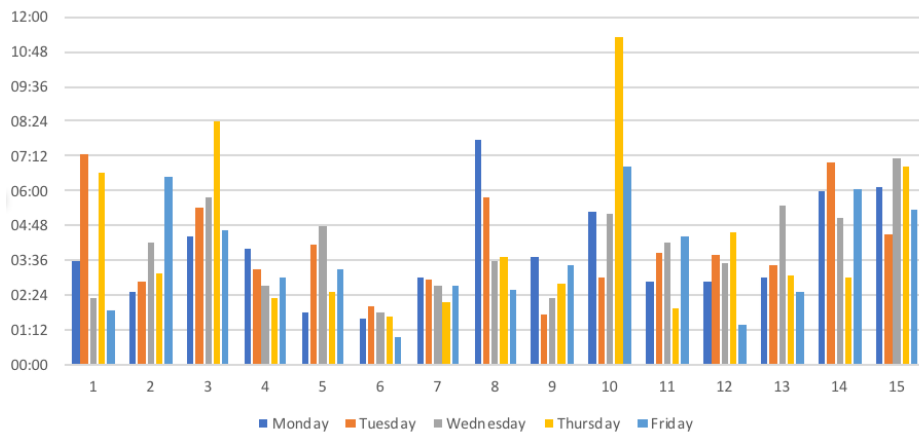


Table 3. Smart phone use in hours and minutes among the 15 students for one week.

Interestingly, the four students (n=4), who later volunteered for coaching represent both heavy and light users of smart phones. While the average was 20 hours per week for the 15 students, the use of the smart phones by the four students was between 13 and 23 hours per week. Additionally, their use of the smart phone was between two and eight hours per school day compared to the group average (n=15) of four hours per day. Consequently, they represent both light and heavy user patterns with

considerable variation from day to day compared to the other students. The data supporting this is presented in Table 4.

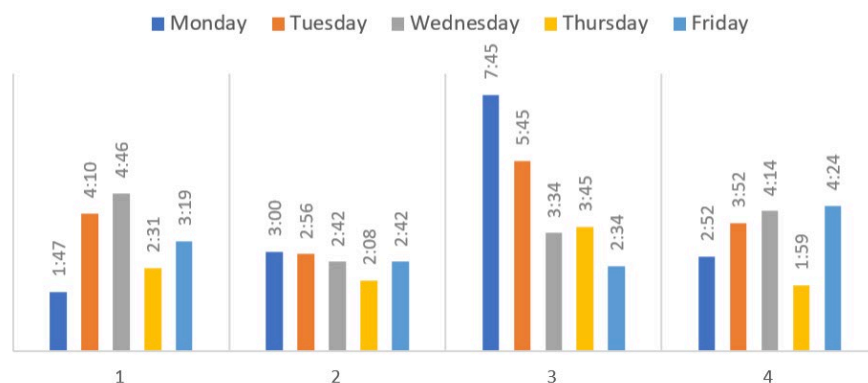


Table 4. Students' automatic tracking of smart phone use in one week, prior to coaching.

Going into more detail, we provide an example of one of these student's self-reported use of the smart phone for 3:09 hours during one day at school. We will call her Lisa. She has 13 preferred apps and picked up the phone 28 times. Her subject-related use was six minutes. To compare, the average number of preferred apps is 10 and the average numbers of pick-ups was 19 in the class. Her one-day user pattern, which is presented in Table 5, is above average in the class.

The 15 students reflected on the data in one lesson at school in step 3. They wrote a text in French, where they typically reported on excessive uses of the smart phone and seldom on learning with the phone at school. They never mentioned the smart phone hotels.

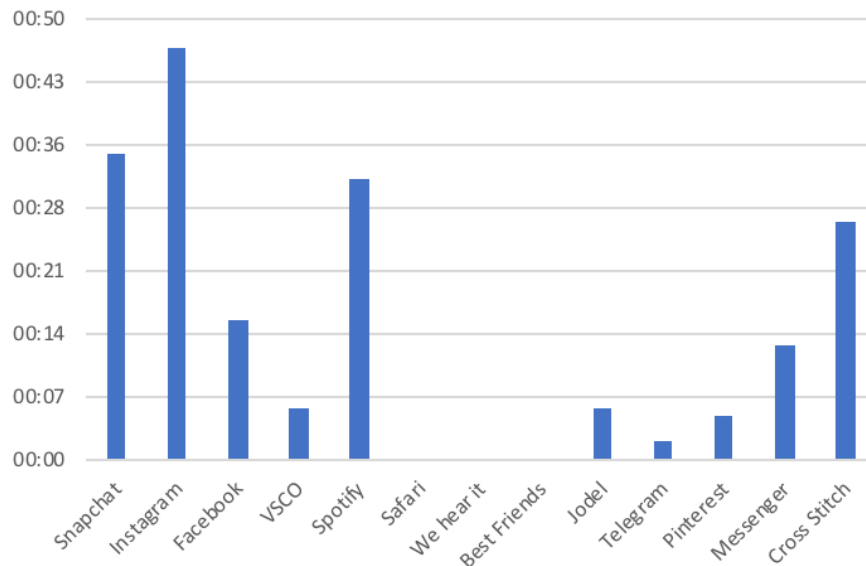


Table 5. Student's self-reported use of smart phone apps in time in one day at school prior to coaching

Nora, who later volunteered to be coached, expressed her concerns and motivation for change after studying the data that was collected in class (translated from French):

Technology constitutes a big part of our everyday lives, and specially the smart phone. I am using the phone a lot more than the other students in my class. I use it at school, but not always for schoolwork. It is very easy to use the phone when the classes are boring, [...] and there are many distractions. On average, I use the phone 6 hours per day. I realize that this is a lot and that it is more important to spend my time otherwise [...] When the lessons are slow, my resistance to use the phone is very limited. I spend a lot of time on Facebook, Instagram and Snapchat. Something which I am not proud of. I would like to spend less time on social media, but it is difficult when everything happens there. I speak with my friends

and maintain contact with friends that I do not see every day. [...] I will try to use the smart phone less now. I feel that the time I spend on the phone has no value. It will not be important in a few years. What is important is the time I spend with my friends in real life. I must learn to live in the moment, not through the phone.

Maria, who also volunteered for coaching sessions, expressed that she used the phone less than the other students in class, and that it was a conscious choice. Her use was mainly of a social nature.

I use the phone less than the other students in class and I think that it is because I choose to do other things in my spare time [...]. If I am working hard at school, I have less homework. Then, I cannot spend time on the phone when I am at school.

The Students' Judgement on Coaching and Their Coaching Experience

For reasons of privacy and ethical guidelines in coaching, we have chosen not to present data from the coaching sessions. We focus on the survey in step 5, where the four coached students describe the results of their coaching experience. In the survey, the coached students reported having no previous experience with coaching and that they volunteered because they were curious about coaching, and believed they might benefit from it. Afterwards, when asked whether teachers should offer coaching, they highly recommended it. On a Likert scale from 1-5, where 5 is the most positive, the four (n=4) students ranked coaching at 4.75 on average. Comparatively, the class also showed a positive attitude to coaching in school (3.8), and reasons for not participating were for example: I did not feel the need to (n=6), no, but I am positive to coaching (n=4). Two students (n=2) believed they could control their own the smart phone use without intervention.

When asked about their present smart phone user pattern, two coached students reported that they had started using the phone *less*.

Nora explained that she just did not use the phone when she did not “need it” and that it had just happened. She used the phone to stay in touch with friends and that her choice of apps corresponded with her personal interests. She believed she spends too much time on her phone and that she is consciously trying to be more “present in the real world” and that it is all about respecting others. She did not believe that she needs the smart phone to learn at school and that it hinders her from reaching her goals. She has decided to put the smart phone in the bag or turn it off. That way, she will think twice before she picks it up. She feels stressed when the smart phone is taken away from her, but she has never used the smart phone hotel in school. She stated that she found the reflection about smart phone user patterns in class very useful.

Lisa reported that she used the phone less timewise, but that she had not reduced the number of pick-ups and that it was a conscious choice. She used the phone to stay in touch with friends and stay oriented about interesting events. She stated that she spent too much time on the phone and that she tried to avoid using it when staying with friends out of respect for their time. She also wanted to use the smart phone for more educational purposes. She admitted to being stressed when not having access to the smart phone. She found the reflection on the smart phone use moderately useful.

Teresa reported that she had not changed her user pattern. She commented that she tried to be more present for others. She used the smart phone for fun and wanted to use it for other things, not just a pastime activity. She believed her attention is well spent at school and wants to learn how to use new technologies to learn in school. She has no experience with smart phone hotels, and she believed her reflection on her smart phone user pattern is moderately useful.

Maria reported that the data showed that she used the phone more than last time she checked and that she had been absent from school (sick) and therefore used it more. Her motivation for using the smart

phone was to stay in touch with friends and to know what is happening. She used apps that provide useful information and to stay in touch with friends. She also believed that she spends too much time on the smart phone. She wants to use the smart phone for useful things and does not spend time on useless games. She believes her attention is well spent at school and would like to listen to music and learn through educational games. Her first move is to leave the phone out of reach when messages appear and read them in the break in order not to be distracted.

The coached students' second tracking of data on the app confirms that the use has gone down for three of the students who volunteered for coaching. This is rendered in Table 6, where the blue line is before coaching and the yellow line is after Lisa, Maria, Nora and Teresa participated in two coaching sessions. Comparatively, 7 of the 15 students reported that they have started using the smart phone less after having reflected on their social smart phone user pattern in class.

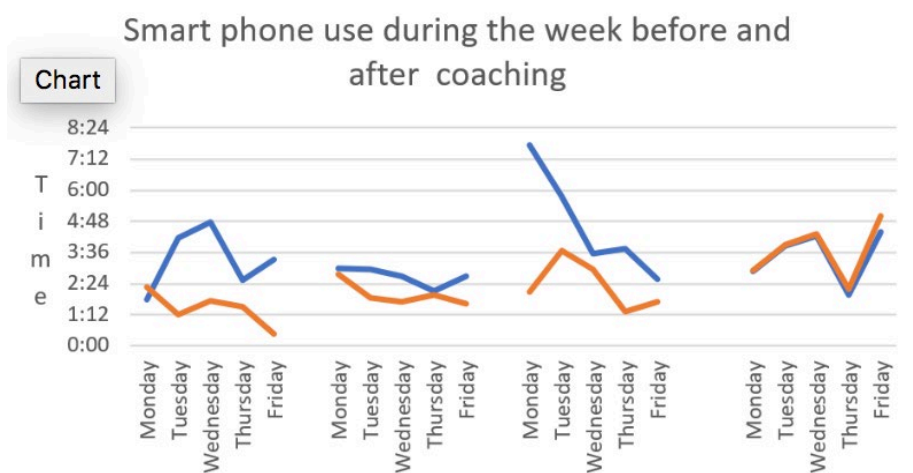


Table 6. Overview of student smart phone use prior to and after coaching.

Findings

In general, this preliminary study confirms previous research on ICT use in secondary education and suggests some new findings on how to solve the teacher's dilemma and proceed with coaching. The preliminary findings, which are limited in scope and range, are presented and discussed at three levels, the school level, the student level and the teacher level.

At the school level, there are two findings related to the use of smart phones in class: 1) Smart phones for learning: The study confirms previous studies in Norway (Blikstad-Balas 2015; Haugsbakken 2016) in that both teachers and students are struggling to use smart phones in meaningful learning contexts in school. The use of phones by students is predominantly social and the use of phones by teachers in class is very limited. Consequently, the smart phones are still considered a distractor, rather than a resource for learning by both students and teachers. 2) Smart phone hotel strategy: Contrary to other studies (Beland & Murphy, 2016), the study suggests that the top-down smart phone hotel strategy is futile at the school. Teachers use the smart phone hotels in many ways and the practice varies from teacher to teacher and class to class. Students in this study have no or very limited experience with the use of smart phone hotels and report feeling stressed when the smart phone is removed. The findings indicate that the strategy is not embraced by teachers and students and that it is up to them to deal with the mobile device dilemma.

At the student level, there are three findings related to the personal and professional uses of smart phones. We have 1) uncovered the students' judgement of their own smart phone user pattern. The findings suggest that using student generated data to inform students' own decision making creates heightened awareness and prepares for a critical understanding of the way they use their time and attention on smart phones in school. The finding has a parallel in well documented gains from teacher-initiated feedback and assessment for learning, where students

reflect upon where they are, where they are going and how to get there in the subjects (Sandvik & Buland 2014). The finding is different in the sense that students are mainly given feedback from peers in the form of comparable data. Mentoring in school involves curriculum-based learning objectives that may not be in line with the students' personal goals (Biesta 2011). 2) We have found small positive changes in the students' use of time and attention to the smart phone in school. There is some evidence that the lesson plan strengthened the students' awareness of their smart phone use and some weak evidence that their behaviour has positively changed two months later, which indicates that they may have gained more control over their smart phone use. However, 3) as for the students' experience and attitude to coaching, the rating shows that the students were positive to coaching, meaning that there were no negative findings. Rather, there was some evidence of goal setting and behavioural change in terms of more conscious and less smart phone uses. As an alternative to assessment for learning, the coaching sessions can be understood as feedback to self, where the goal is in line with the students' personal values. Finally, it is difficult to show what caused the change in the students' attitude and behaviour, the mere focus on the dilemma, the lesson plan, the coaching sessions or a combination of the three. Clearly, we need to collect more data to provide strong evidence. The most interesting features being personal goal setting and feedback to self to direct learning and behavioural change.

At the teacher level, there are three findings related to the use of coaching in class: 1). This study confirms that teachers who participated in the Erasmus+ COACH project see enough pedagogical benefit in coaching to carry out research to solve problems that they face in their own classrooms, with little support from the school management. The case study has contributed to inform and change practice in the following ways. Through coaching, the teachers involved have come to a better understanding of how students relate to their smart phones and how they

can see students as a resource to contribute to solving the teacher's mobile device dilemma. Spending time with the students, letting their voice and values come across, has also added considerably to our awareness of the individual student as a valuable resource in the learning process in the classroom in general, which constitutes a cognitive change.

2) There is also a change in pedagogical practice. Based on experiences from the case study, we have started using coaching early in the course to make students decide upon personal learning goals (grades as a consequence of effort), and we refer to these goals to make students stay on track during the semester. As a consequence, the focus is on the learning and the use of formal grades has been reduced to once every term, which is in line with the Norwegian guidelines. We have reduced the ambition of formal coaching sessions, which was very time consuming, and made room for coaching in conversations during, and in breaks in connection with lessons. The coaching is informal, in the sense that, in addition to assessment for learning, coaching techniques are used to make students responsible for their own learning. We also use coaching techniques when talking to students, who have some issues related to time and attention in class.

3) In the case study, the teachers developed a lesson plan involving a combination of smart phones, data collection and coaching techniques that is transferrable to other subjects and the 20 teachers with coaching skills at the school. Transferring professional coaching skills to other teachers is however a question of time and priorities, but we believe that a basic understanding of coaching techniques related to active listening and reflective questioning are within reach, if not in teacher education or in schools, in open online courses. We suggest that teachers, who are pedagogically trained and experienced, have an advantage when it comes to adopting coaching techniques.

Conclusion

In this article we discussed smart phones in school and suggested an alternative to the top-down strategies that have been introduced to limit excessive use of smart phones that are not directly educational (smart phone hotels and banning smart phones from school premises). We suggested a bottom-up approach, where we explored to what extent coaching can empower students to make valid judgements about when and how to use their smart phones to avoid non-subject related use in school and facilitate educational uses of the smart phone in schools.

The study suggests that the lesson plan, a combination of individually retrieved and comparable user data and coaching may be a powerful combination to motivate students to change their behaviour towards using the smartphone to reach their educational goals. Our findings suggest that self-collected data on the smartphone has the potential to confront students with their own user patterns, emphasise the importance of the use of time and attention in school and motivate students to judge their own smartphone use, based on their individual academic achievement goals. There is weak evidence that the offer of a non-judgemental coaching session has the potential to strengthen students' inner motivation to change their behaviour on the smartphone to reach their educational goal. Coaching represents a safe environment for those who feel the need to make a change, want to lower the unpleasantness of change and decide upon the first steps towards a self-determined goal, This is a preliminary study and more research is needed to determine the effect of coaching in the lesson plan and to understand the long-term impact of coaching.

The study also suggests that coaching techniques are of pedagogical use in the teacher's pedagogical toolbox. The two teachers and the 15 students either related to (n=11) or experienced (n=4) coaching in positive ways. The approach is innovative and constitutes an example of the broadening vision in the application of coaching practices in educational

contexts to support processes such as feedback to self, self-regulation and meta-cognition. The teachers involved in this study, who have received 160 hours of training in coaching, have changed their practice in the sense that they actively use coaching techniques in their teaching, and they report having gained a deeper understanding of the values that direct and motivate student learning and how students can be a resource in the learning process.

The findings are aligned with the findings of the Erasmus+ COACH-project (COACH 2017), which show a positive effect on teachers' motivation, feedback, self-regulation and metacognition amongst students in coaching goals and outcomes. The Erasmus+ COACH-project (2017), showed that the benefits to the schools, including the school where this study was conducted, included increased reflectivity, stronger collaboration and sharing of knowledge. In particular, the teachers developed greater skills in listening, communication and interpersonal relationships. However, existing research indicates that the teachers need organisational support. The schools must support training for their staff and organisational goals must align coaching strategies with the overall strategy for the school, which is costly, but also a question of priority at a strategic level. There is little in the way of research literature on coaching in teacher training, but we strongly believe that we will see more coaching as the research on coaching in education grows. We are thankful to the European Commission for funding this training, which has motivated us to develop new ways of teaching and learning to the benefit of our students.

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