Views on the incorporation of Geolocation Devices in Field Trips

Opiniones sobre la incorporación de dispositivos de geolocalización en excursiones

Opiniões sobre incorporação de Dispositivos de Geolocalização em excursões

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Abstract:

Introduction. Some outdoor activities may have been self-constrained due to the fear of students getting lost. It is a limitation for the school staff and a constraint for students. However, few studies have been developed regarding the possibilities of geolocation as a solution. **Aim.** The study aims to explore this brand-new issue that could benefit the management of field trips. The study was developed from a mixed-method perspective with a sample of 51 members of an educational community. **Methodology.** The methodology included surveys to analyze the level of students' autonomy and the views on security by parents, teachers, directive team, and students with the possibility of incorporating these devices. **Results.** Show that using geolocation devices in field trips improves the sense of security and allows students to develop autonomous skills. **Conclusion.** Geolocation in field trips has great potential, but it is an understudied field that needs more research and discussion to ensure data privacy.

Keywords: Geolocation devices; security; GPS; autonomy.

Resumen:

Introducción. Las actividades al aire libre en ocasiones han sido limitadas debido al temor de que el estudiantado se pierda. Es una limitación para el personal de la escuela y una restricción para el estudiantado. Sin embargo, se desarrollan pocos estudios sobre las posibilidades de geolocalización como solución. **Objetivo.** El objetivo del estudio es explorar este nuevo tema que podría beneficiar la gestión las excursiones. El estudio se desarrolló desde un enfoque mixto con una muestra de 51 miembros de una comunidad educativa. **Metodología.** La metodología incluyó encuestas para analizar el nivel de autonomía del estudiantado y la seguridad de los padres, madres, los maestros, maestras el

equipo directivo y el estudiantado que generaría el uso de estos dispositivos. **Resultados.** Los resultados muestran que el uso de dispositivos de geolocalización en excursiones mejora la sensación de seguridad y permite al estudiantado desarrollar habilidades autónomas. **Conclusión**. La geolocalización en educación desde el punto de vista organizacional tiene mucho potencial, pero es un campo poco estudiado que necesita más investigación y debate para asegurar la privacidad de los datos.

Palabras claves: Dispositivos de geolocalización; seguridad; GPS; autonomía.

Resumo:
Introduçao. As atividades ao ar livre às vezes são limitadas devido ao medo de os estudantes serem perdidos. É uma limitação para o pessoal da escola e uma restrição para os alunos. No entanto, poucos estudos são realizados sobre as possibilidades de geolocalização como solução. **Objetivo.** O objetivo do estudo é explorar esse novo tópico que poderia beneficiar a gestão de viagens de campo. O estudo foi desenvolvido a partir de uma abordagem mista com uma amostra de 51 membros de uma comunidade educacional. **Metodologia.** A metodologia incluiu pesquisas para analisar o nível de autonomia dos alunos e a segurança que pais, professores, equipe de gestão e alunos geraria o uso desses dispositivos. **Resultados.** Os resultados mostram que o uso de dispositivos de geolocalização em excursões melhora a sensação de segurança e permite que os alunos desenvolvam habilidades autônomas. **Conclusão.** A geolocalização na educação do ponto de vista organizacional tem muito potencial, mas é um campo pouco estudado que precisa de mais pesquisa e o debate para garantir a privacidade dos dados.

Palavras chave: Dispositivos de geolocalização, segurança, GPS, autonomia.

Introduction

In this ever-changing world where technology is becoming more present in our lives, attention should be paid to the advantages that technology can offer to all fields. The sociologist Bauman (2000) suggested that we are a liquid society that is dynamic, flexible and changing. Therefore, people have to adapt to changes to survive, quoting Darwin, it is not the strongest of the species that survives but the most adaptable to changes (Beltrán López, 2015). Therefore, we bring innovation with the tools or strategies to solve problems. Evolution comes from being able to solve problems and education is not far from this idea. If we think about technology to make lives and daily problems easier, we could think about introducing technology to improve the educational experiences.

The connection of education with new technology should be empowered because of the multiple benefits it could bring to the classroom. This relation has quickly evolved throughout the years, especially in the use of it inside the classroom. Technology has been introduced gradually in education. First came ICT (Information and Communication Technologies), when technology was a source of information. Then, TLK (Technology for Learning and Knowledge) appeared to emphasize the use of technology as an instrument of learning. Nevertheless, apart from using technology for didactic purposes, it should be applied in other educational areas of study as well.

This paper attempts to examine the effectiveness that the introduction of geolocation devices could provide to outdoor activities and field trips. Interaction with the real context plays a vital role in students' learning process. While some of them are able to get involved in such activities, some others might not because of the responsibilities and work it entails. Hence, depending on the school, children can benefit more from this kind of experiences. To date, the problem has received scarce attention in the research literature and the incorporation of technology has not been considered to ameliorate the situation.

Geolocation

Geolocation is a term quite new in society and in some countries even more than others. Although it is hard to find a dictionary where Geolocation is defined, the Internet is quicker in being updated and we have other sources to find a definition. The Oxford Lexico (2019, parr. 1) states that geolocation is "the process or technique of finding the exact location of a person or device using the internet". Meanwhile, the acronym GPS does appear in the dictionary as a system which allows knowing the position of an object due to the reception of signals sent out by satellites. This is curious considering that GPS is just an instrument within the theoretical concept of geolocation (Beltrán López, 2015).

The different positioning systems that exist must be analyzed to, later on, precise which one would be the most adequate for education. Drawing from Rodríguez Aguado (2011), the positioning systems existing nowadays are:

- Location through satellites. Uses satellites to create satellites networks like GPS (Global Positioning System) that receive information of the time that last satellites' signals need to reach the object.
- Location through mobile phone network. It uses the same process followed with satellites but with BTS (Base Transceiver Station) allowing wireless communication between a network and a user equipment.
- Location through wireless networks. It is used when satellites' signals have enough power to reach devices or BTS have enough prediction, Bluetooth, Wi-Fi and RFID (radio-frequency identification devices) technologies.
- Location through IP address. the IP (Internet Protocol address) is used as a numerical label stored by Internet suppliers and assigned to all devices connected to a network.

It is obvious the broadness of the topic of geolocation and the multiple technologies that emerge from it. This technology has been a huge step in the evolution of society. However, it also comes with some critical issues that should be considered as it is in the case of privacy. People may have privacy concerns related to geographic tracking (Junglas & Spitzmuller, 2005; Kaasinen, 2003; Minch, 2004). However, it is remarkable that privacy concerns seem to diminish

somehow in a student population regarding *pop-out* messages which they accept without previous checking (Olmsted-Hawala & Nichols, 2018). *Universal Declaration on Human Rights* (United Nations, 1948) article 12 states that "no one shall be subjected to arbitrary interference with his privacy, family, home or correspondence, nor to attacks upon his honor and reputation" (p.4). Thus, all people have the "right to the protection of the law against such interference or attacks" (p. 4 443). Years ago, any intrusion could be punished and so could now.

Privacy is linked to the obtainment, distribution and the non-authorized use of personal information (Wang et al., 1998, cited in Flavián & Guinalíu, 2006). It goes hand in hand with the perceived security that people have of believing that their personal information will not be manipulated (Flavián & Guinalíu, 2006), even though there is a possibility that people could access to the geolocation data collected. Therefore, worries can emerge because of personal information implied and people becoming more vulnerable, consequently. However, as it has been argued above, this would be a violation of the law and would be punished.

The use of geolocation devices in the school can be a controversial topic. On one hand, it can generate some insecurity due to the fact of sharing your location without being 100% sure that nobody will get this data for an unlawful purpose. On the other hand, it can be an enormous source of security for parents as they ensure their children are localized and cannot get lost. In fact, this was put into practice in different cities, such as China (Huang et al., 2014), to deal with parents' worry about children's security. Geolocation was introduced as a control tool, not in education but in all fields where the children were involved. A mobile monitoring system was tested to allow guardians of children to view their positions. The purpose was to keep the child in the guardians' eyesight but did not have accurate data of the orientation of the child. This means that as less information can be collected about the children's position, there is a higher level of data security. But, therefore, it is less precise.

All possible measures could be put into practice to avoid any interference and even more in an educational environment. As it was done with the Safety Monitoring system for children used in China, the monitoring system could belong to different departments, and children's parents, guardians or other people would not have the right to use them. However, it is really hard to ensure 100% privacy because, as in all fields, there can be people violating the law. Any type of intrusion against the right of privacy is documented as criminal records (Agencia Española Protección Datos [aepd], 2019) and can be sanctioned depending on the kind of offence, the consequences caused and intentionality.

Geolocation in education

Geolocation in education is a freshly, wide and little covered topic. More used in didactics area than in the organization of field trips and outdoors activities. From a pedagogic perspective,

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a further explored use of geolocation is the contextualization of knowledge: using any instrument to locate themselves or topics studied geographically (Gros Salvat & Forés Miravalles, 2013), starting with physical maps and evolving with the introduction of technology as google maps. Another utility of geolocation has been in the well-known activities of geocaching, very extended with the expansion of gamification in education.

In terms of school organization and management, little research exists about the topic, so there is no clear evidence of possible uses. Considering that school organization impacts positively in students' performance as it constructs the environment where students' learning occurs (Gutiérrez Ruiz et al., 2017). The tools used in an organizational level for organizing field trips, therefore, are essential for successful results. Robinson et al. (2009, p. 44) suggested that "it is the role of leadership not only to select or develop tools but to ensure that [they] … actually help the users achieve the intended purposes". The use of geolocation can be beneficial if it is used adequately with specific and clear purposes.

Education must be adapted to the needs of students and society. Technologies are already a big part of everyone's lives as we are living in a digital era and many fields are changing with the introduction of technology. In the education field, it could also be introduced in terms of school management to benefit from it to promote a key element, autonomy. Educational professionals support the theory of socio-constructivism studied by Vygotsky (1978) as the education base. Therefore, learning should come from students' active role, experience, interaction and autonomy (Gros Salvat & Forés Miravalles, 2013; Leiva Olivencia & Moreno Martínez, 2015). All students should be autonomously competent as it is a key element in education that underpins an individual's ability to make choices, personally evaluated as *good* and which is, in fact, affected by the school management and organization.

The self-determination theory notes that students' academic functioning depends on autonomy (Cooke et al., 2018; León et al., 2018) claim that children dislike rules restricting their behavior and are likely to break them due to their feeling of obligation. Despite the consciousness about the importance of autonomy in learning, there is no clear of it. All in all, it is agreed that an autonomous learner does not react to teachers' stimuli but adopt an active role in learning (Thanasoulas, 2000). It is not letting things happen but being involved, interacting with the world. In education, Omaggio (1978, cited in Thanasoulas, 2000) suggests awareness of their learning styles, active role, maturation and risk-taking to improve autonomy. Following a critical and constructivist theory where self-directed learning is promoted to allow students to build up knowledge, learner's autonomy assumes a more social and political character. That is, they realize the social context in which their learning is embedded and all it means, students become independent, undeceiving preconceived ideas and constructing their own thoughts (Thanasoulas, 2000).

Although there are few studies on using geolocation services as a tool to organize field trips, there are already some applications for this purpose. Nevertheless, schools have not taken part in this new trend. In 2018 the application called RoundApp Kids was presented by Mildmac Advanced Solutions which can identify when a child moves out from the previously established area of work. Other important tools that have been used in some countries are Smartwatches which do not only give information about the children's location but also can broadcast what is happening around them. Unfortunately, the easiness to spy children because of the big amount of information provided by those devices and their multiple functions were important issues leading to its removal. Germany is a good illustration of this, parents' use of Smartwatches to listen to teachers' lectures caused its prohibition in 2017. Nevertheless, the trigger was that third persons' privacy rights were being transgressed. Hence, a responsible and correct children's monitoring system which does not involve other people should exclusively include children's location.

A lot of uncertainty exists about resources that could be used in schools because of the lack of engagement of schools with this innovation. However, with a cautious search, few location services can be found, for instance, SOS-KIDS, a business run by a group of three Catalan entrepreneurs. It stocks schools with devices similar to medals that students have to wear, and which are connected with a specific application. Teachers having the application can track students at all times. All in all, it can be affirmed that there is a lack of studies regarding the use of geolocation to facilitate school organization, an issue very important to deal with in the 21st century. However, there is a need to study the perceptions and views from the parents, teachers and the students regarding the issue and if this is a possible path to feel safer of more autonomous in field trips and outdoors activities.

Method

This paper has the purpose to analyze whether the introduction of geolocation in the organization of school field trips could be positive and beneficial according to the agents involved. The main objectives are (1) analyzing the security felt by parents, teachers, students and members of the directive team of the possibility of having students carrying geolocation devices; and (2) analyzing the level of autonomy students perceive in outdoor activities and field trips.

In order to obtain information about the objectives presented, a study case was carried out. Murillo and Roman (2011) maintain the opinion that all the participants involved in school activities should be recognized to promote a learning environment free from setbacks. Therefore, for this study, an exploratory study from a humanistic paradigm was developed. It was considered a good source of information about the topic under discussion as many agents in the school would be affected by the feasible integration of geolocation devices.

To develop the exploratory study, a state-subsidized school located in Barcelona (Spain) was selected. It was a convenience sample composed of 51 people from the school and including all 4 groups. There were 27 parents, 13 teachers, 6 students and 5 members of the

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directive team. It must be said that when selecting students was important to have a sample from diverse grades and, therefore, ages (6-11 years old) because the older students are the more autonomous ones in field trips.

The instrument used to collect all the data was an online survey with open questions (Appendix A) and personalized to all the agents: teachers, directive team, parents and students. While for teachers, directive team and parents the survey was self-administrated, students answered the survey face-to-face with the author of the study. It was necessary to collect information in person because students may not express themselves as well in written. The questions revolved around security felt in school trips, views on the possible use of geolocation devices, and, in the case of the students' survey, autonomy perceived in field trips. Some of the questions were similar but they all were adapted to the role each agent group has in the school.

Parents' survey consisted of ten questions going from general issues related to their feeling of security to more specific issues related to the possible use of geolocation devices in the school environment. For teachers' survey, the questionnaire embraced the same number of questions and had a similar structure than the one answered by the parents. Evidently, they were asked for different things such as grading the amount of pressure they feel due to their responsibility of controlling all pupils. The opinion of the directive team was considered crucial as they have a determining role in the organization of field trips and, moreover, in the decision on the possible incorporation of geolocation devices. In this particular case, they had twelve questions to answer and assembled similar to the two previous surveys. Finally, students had to respond to thirteen questions.

After collecting all the data, a grid organized by the two main topics (security and autonomy) and the four types of informants was elaborated to introduce all the open answers and be able to find similarities and differences between them. In the case of closed questions, a descriptive analysis was developed, analyzing the means and modes.

Results

Security

Multiple items on the survey measured the extent to which the different agents involved in the school feel secure during field trips and their thoughts on geolocation tools. It is suggested that students and parents are keen on the introduction of geolocation devices as almost everyone answered positively to the possible incorporation. Meanwhile, teachers and the directive team have diverse opinions. Some of them support the idea of incorporating this innovative equipment, yet the rest rejects it. Following this, the greatest amount of people would be in favor of the change proposed in the paper.

Students and parents commented they would feel much calmer if they knew that pupils could be localized easily during school trips. Considering that all students interviewed admitted experimenting fear about the possibility of getting lost, they all used the term *tranquility* to describe a situation where geolocation devices were used. Furthermore, parents agreed on the fact that they suffer when their children go on an field trip and, even more, two of them explained a situation they went through where their children got lost.

There was quite high support on the incorporation of geolocation tools since they highlighted that they would feel more relieved. As one interviewee put it: *We could expand the area in which students move and we would be even more relaxed* (Teacher 8). Nevertheless, a small number, of those interviewed argued that would be too much control or that controlling students is a job to be done by teachers. Tied to these arguments against the incorporation of geolocation devices appeared the fear of using technology to manage private information.

Furthermore, it appears that parents differ in the level of trust they place in the teachers' supervision. Closer inspection allows seeing that few parents trust 100% their children's school. Although no parent showed a low trust in teachers' supervision (level 1 or 2) when grading from 1 (very low) to 5 (very high) their trust in teachers' supervision, most of them revealed in other questions that they believed teachers are not able to control all children or have them at sight. Some parents even answered using terms such as *impossible* or difficult.

Generally, parents recognized being aware of the troubles in controlling students because of pupils' tendency to get distracted. They noted it is teachers' obligation and they should be prepared. However, they apparently are not completely sure all the teachers accomplish this requirement. On the other hand, the majority in the directive team shared the same opinion regarding trust, stating a very high level of reliance. Only one member of the target group considered trusting in a level above the mean. Meanwhile, a high number of teachers recognized how profoundly difficult is to maintain all children at sight.

Regarding the possible issues, they imagine those devices could have, but the participants did not find any. There were 5 issues echoed. The two that came up the most were the excess of control children would experience and the excessive reliance on the devices and, hence, the increase of distractions. Talking about these ones, some interviewees said: *There are no drawbacks for the school, but I am not very comfortable with the idea that children become robots…* (Parent 19) and *Teachers may rely too much on the devices and lower one's guard* (Parent 16). This can be summarized in a word used oddly by the teachers and not the parents which is *privacy*. However, just two of the parents involved in the study considered this as an obstacle for the introduction of the devices.

Other concerns arisen were on the possible mechanical failures or the increase in costs. The last inconvenient was exposed by a parent and, in fact, not expected. A participant reported that

it does not promote the responsibility and autonomy of students (Parent 11) and the same utterance was used by two teachers. Interestingly, members from the directive team were the ones who pinpointed fewer problems in case of using geolocation, in fact, the only worry highlighted by one member was *the lack of improvement of students' responsibility* (Directive team 5).

In spite, all the directive team declared they have no difficulties when organizing, half of them considered that introducing geolocation could reduce possible issues emerging from it. Concerning teachers, a common view amongst interviewees was that they feel they can carry out the activities planned during field trips because they do not spend much time dealing with troubles in terms of management.

Contrary to the previous answers, a considerable amount of those who were interviewed indicated that geolocation would be advantageous to reduce difficulties arisen while arranging outdoor activities. Furthermore, some of them reaffirmed their answer with terms such as *totally*.

When participants were asked for their willingness to have geolocation devices incorporated in the school, a good acceptance to this possible change and innovation arose, although there were different answers, these weren't categorically diverse depending on the group. However, a greater distinction between variables is visible with parents' and teachers. In the case of the directive team, special attention should be given to those hesitating which agreed on having a practical trial with the devices before giving a definite response. Some of the respondents whose answer was *yes* highlighted that the technology should be used in specific activities, mainly in outdoors and large areas. Wholly, whilst a minority mentioned that they would not want these devices saying *there should be specific and positive arguments for me to support the idea because I think it is too much control* (Parent 21), a significant majority agreed on the introduction commenting that *it would be interesting to try them* (Parent 3, Teacher 6 and 9), *I would love it* (Parent 23), *I would like to have them available when needed* (Parent 15) or *Yes, if it is helpful for teachers and avoids students getting lost* (Parent 8).

Autonomy

So far, the focus has been on the security felt by the four groups taken as a sample. Below, results will be shown related to students' autonomy. When pupils answered the question concerning their sensation about having opportunities to have autonomy during field trips, it was noticeable the increase of responsibility they have as they grow. Those whose response was *sometimes* were the ones in higher grades. Although this latter comment, all participants admitted they have few chances to decide.

When talking about the conditions that teachers put during field trips, all students stated there were several requisites to follow. The one concerning them the most was the size of the area where they can move around. Interviewees shared the opinion that they would like a bigger

zone where they could move. A general awareness of the necessity to have some limitations were visible but, at the same time, they appeared to be sure there are too many. Participants suggested having a larger area destined to work or pass their free time during school trips would be positive. What is striking, it is a mention of liberty. Two students talked about the relationship between a large area and freedom. One individual reported *If we had a bigger area, I would feel freer but also scared to get lost* (Student 5). They value that having a big area would provide more freedom and autonomy to them, but they acknowledge the risks it can bring.

In association with this, strong evidence of their willingness to have a bigger space to go across came into sight. In response to the question concerning the size of the area, all those interviewed indicated that they would like it. Talking about this issue, different participants said: *Yes, because we can play more, discover and investigate* (Student 2), *Yes, because we are too close to each other* (Student 3), *It is more interesting because you can investigate more and different things, you can share your discoveries and then learn from everyone and about everything* (Student 5), and *I would feel freer and we could take a look to diverse things* (Student 6).

What is more, students were asked to give an argument why field trips should be promoted. They all coincide with each other saying that it is a way to learn in a different manner from the routines to which they are accustomed to. Nevertheless, one student stressed the idea of workload in the management of school trips. Quoting her own words, *although field trips are interesting for learning, their organization implies a lot of work in terms of authorizations, teachers, among others* (Student 5).

Figure 1: Students' words about field trips benefits
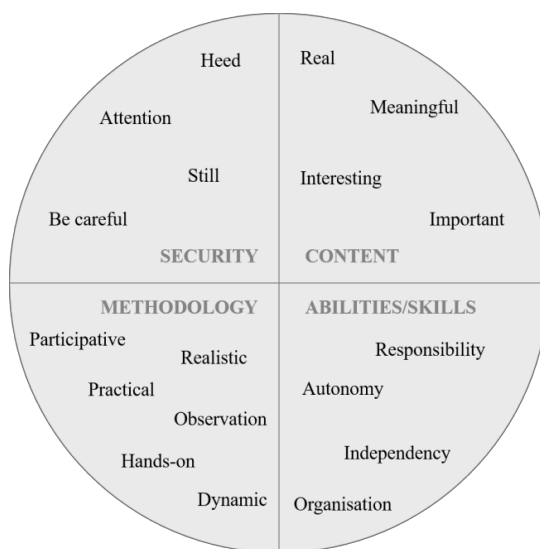
Note: Compilation based on the data analyzed by the authors.

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Finally, participants had to tell at least the first three words that came into their minds when thinking about field trips and, afterwards, what or how they can learn during those outdoor activities. Those words were collected and organized in four different groups, as in Figure 1, labelled with methodology, security, content and abilities/skills, as they emerged from the data. For the first one, all the words related to how the learning is were included, for instance practical. Insecurity was gathered those linked to actions they have to do in outdoor activities to ensure protection, such as attention. For content, there are the ones which give information about the type of knowledge they can achieve, by way of illustration it is meaningful. In the case of abilities/skills, there are the learnings and personal growth they affirm doing during school trips as autonomy.

Discussion and Conclusions

The goal of this study was to go in-depth into a brand-new issue that could benefit 21st-century schools which are greater including technology in their daily functioning. One of the aims was to analyze the security felt by different educational agents involved in the case of using geolocation devices in field trips.

Results show that students, teachers, parents and directive team from the sample would be keen on the idea of using geolocation devices because it would give them *tranquility,* especially in school trips in large areas. All students support the idea which may be explained by the fact they are only aware of the fear they feel when getting lost rather than the negative aspects those devices could bring such as privacy issues or excessive reliance (Olmsted-Hawala & Nichols, 2018). Another group which greatly supports the geolocation devices are the parents, considering that levels of trust in teachers' supervision were not the highest they could be. Although they see a few disadvantages, they highlight that would be good if it helps the teachers. Considering the arguments against, it might be good to combine geolocation devices with regular control to avoid a possible excess of reliance on the devices.

Moreover, as some parents and teachers find a bit overwhelming having children so controlled, the incorporation of these devices could be done in specific cases where the organization of activities is harder. In the case of teachers, they are more reticent to the possible change. Hence, considering that some teachers stated they have it all under control in field trips and that they are not under much pressure, it could conceivably be hypothesized that they feel judged for the work they do. A similar situation appears with the directive team that seems to be proud of their whole functioning in terms of school trips and half of it does not see the necessity to use technology. Nevertheless, teachers, contrary to the directive team, seem to be more open to the introduction of geolocation devices. Two possible explanations can be that the directive team is not directly dealing with the control of children or due to school ownership and funding. This could be the reason why one of the most common inconvenient found among the directive team is the costs of the devices since they should have to face it in their budget.

Surprisingly, the issue of privacy has not been considered that much, in fact, even more teachers than parents appear concerned for having information manipulated (Flavián & Guinalíu,, 2006). They all remark this drawback, but they look at the use of these devices from another perspective, as a source of security as it happened in China rather than a tool to violate a human right (Huang et al., 2014).

On the other hand, regarding autonomy, it is interesting to note that the term appeared in different moments during the study. Everyone's awareness that autonomy highly affects students' academic functioning (León et al., 2018) is confirmed by this. First, it was considered as an inconvenience because students may relay too much on the devices and because they are controlled all the time. However, it is gripping to see that students themselves break that myth of dependency relationship between geolocation devices and the development of autonomous abilities.

The words given by students about skills linked to autonomy, and comments such as *If we had a bigger area I would feel much freer but also scared to get lost* (Student 5) corroborate that giving the possibility to have a large space where they can self- direct their learning, take risks and interact with the world would be beneficial for them to maturate (Thanasoulas, 2000). Nevertheless, this could be done having a support tool to control children in case any unexpected event happens. It is not about removing teachers' control but providing an instrument to assist them.

Furthermore, autonomy arose as a key element all participants wanted to develop in the students. Teachers but also students, as it is shown in their answers, believe that independence and allowing them to make decisions and make their own paths can deeply enrich learning. Nonetheless, until now, the idea to promote it through the use of a greater area to go across was not conceived due to the possible problems with controlling children and the workload in organizing. Perhaps now some members are contemplating the option to include geolocation devices to foster autonomous learning. Thus, it is greatly interesting to see what students think field trips can provide them. In Figure 1, powerful words in learning are exposed next to security ones that should not be eliminated but assisted with all the possibilities of geolocation devices.

This study has identified that although geolocation systems could be helpful, there are some issues that make stakeholders hesitate in terms of privacy and accuracy. In this sense, it would be satisfying for everyone if the technology used is the most precise existing nowadays, for instance, geolocation through satellites (Rodríguez Aguado, 2011) and if this incorporation includes a discussion and reflection about the ethics of the tracking system, the settings of the devices regarding data privacy and the responsible use of it. In this sense, as several participants asked, a trial should be considered to allow them to see the well-functioning and to start the ethical discussion and make the grounds to ensure privacy (aepd, 2019). Hence, some already available resources and services examined in the paper, such as SOS-KIDS, could be considered by schools willing to set forth this innovation.

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Overall, the research has encountered some limitations. The most obvious one is the ethical concern about the privacy data and ethics. As stated before, this is a sensitive matter that must be approach carefully and within the consensus of the educational community in schools. The second limitation is the lack of study developed in the field. As an emerging topic, there are few studies that can help us to be sure about this use of geolocation and therefore it is useful to start discussing the topic to evaluate the experiences and possibilities. The third limitation is within the methodology developed. This is a case study and, therefore, we cannot generalize the results obtained. Nevertheless, this study offers a first approach to the field for further research. Notwithstanding limitations, the study suggests the incorporation of geolocation devices for field trips could be beneficial with a previous consideration of all its implications and trying to attain most of the requirements of those involved in the change. A possible future line of research would include an experimental use of geolocation devices to contrast the perceptions showed in this exploratory study about the privacy issues and autonomy in field trips.

Declaración de Material complementario

Este artículo tiene disponible, como material complementario:

-La versión preprint del artículo en https://doi.org/10.5281/zenodo.4891736

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Appendix A: Survey questions

Parents' survey

1. What comes to your mind when you are informed that your child is going to do an outdoor activity?
2. Have you ever felt afraid of having your child lost during a field trip? (If yes) When did it happen?
3. Do you think that teachers can control and have all students at sight? Why/Why not?
4. From 1 to 5, grade how much do you trust teachers' supervision? Why?
5. What would you feel and think if you knew that students can be localised at all time?
6. Do you think that geolocation devices (GPS systems) are precise?
7. Do you think that having children localised with geolocation devices could be helpful?
8. Do you think it would lower the difficulties when organising outdoor activities?
9. What inconveniences do you find in introducing these devices?
10. Would you like to introduce these devices in the school?

Directive team's survey
1. What kind of difficulty arises with parents when doing an outdoor activity because they do not feel secure?
2. Do you try to have higher or enough ratios of teachers in outdoor activities? Why?
3. Is it difficult to arrange teachers to do outdoor activities?
4. Is there any way you have to communicate with teachers on field trips? Do you check good functioning of the field trip in terms of management?
5. Do you ask for teachers' feedback about the management of field trips?
6. From 1 to 5, grade how much do you trust teachers' supervision? Why?
7. What would you feel if you knew that students can be localised at all time?
8. Do you think that geolocation devices (GPS systems) are precise?
9. Do you think that having children localised with geolocation devices could be helpful?
10. Do you think it would lower the difficulties when organising outdoor activities?
11. What inconveniences do you find in introducing these devices?
12. Would you like to introduce these devices in the school?

Teachers' survey

1. From 1 to 5 grade: how much pressure do you feel for the responsibility to have every child controlled?
2. Does supervising children all the time allow you to go over all that you meant to work in a field trip?
3. Do you indicate a certain area that students cannot overpass? Have any student overpassed that area?
4. Do you think that teachers can control and have all students at sight?
5. What would you feel if you knew that students can be localised at all time?
6. Do you think that geolocation devices (GPS systems) are precise?
7. Do you think that having children localised with geolocation devices could be helpful?
8. Do you think it would lower the difficulties when organising outdoor activities?
9. What inconveniences do you find in introducing these devices?
10. Would you like to introduce these devices in the school?

Students' in-person survey:

Security

1. Have you ever got distracted and a bit lost in a field trip? When? In what situation? Did you get scared?
2. What would you do if you got lost?
3. Do you pay attention to all directions and instructions teachers give?
4. How would you feel if you got lost but knew that teachers could know where you are?

Autonomy

5. Do you have the opportunity to make choices on field trips?
6. Do you feel or not limited during field trips?
7. Do teachers put a lot of conditions in terms of moving around the area on field trips? What would you feel if there were less?
8. Do you think you have enough time to work during field trips?
9. How many meeting calls do you usually do?
10. Would you like to do more field trips in a school year?
11. Would you like to do field trips which have a more extended area where you can move?

Common areas

12. Say 3 words that describe a field trip.
13. Say 3 words that describe what you can learn on a field trip.