Privacy Concerns about UAS Missions

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Introduction: The purpose of this study was to determine what variables predict privacy concerns. In other words, do political affiliations, location, or gender affect a participant's emotions toward their privacy?

Abstract

Unmanned aerial systems (UAS), also known casually as drones, have changed the ways in which many industries conduct business. One prevalent example would be their use by police organizations (local patrols, SWAT, etc.) to revolutionize their surveillance capabilities. Many major city police commissioners have stated their interests in welcoming the use of UAS. Past studies have analyzed citizen's emotions in regard to privacy concerns focusing on the amount of time the drones spent patrolling--either twenty-four hours a day or in mission-only conditions. The purpose of this study was to determine what variables predict privacy concerns. In other words, do political affiliations, location, or gender affect a participant's emotions toward their privacy? Two hundred participants were surveyed through Amazon's Mechanical Turk (MTurk). They were presented with hypothetical scenarios involving police issued UAS patrols occurring near their residence. Following the scenario, they were asked to rate statements from a validated UAS privacy scale and then complete a set of demographic questions that served as potential predictors. A linear regression analysis revealed two significant predictors. First, females were more likely to express privacy concerns during the UAS missions compared to their male counterparts (B = .31). Second, people who rated themselves are more conservative also expressed more privacy concerns compared to people who rated themselves as more liberal (B = .30). These two variables accounted for 19% of the variance in the data. When conducting UAS missions in public or near housing residences, it is important to take note of the privacy concerns raised by residents and other citizens in the area. These findings reveal that females and conservative-leaning people tend to have more privacy concerns about UAS missions than male, liberal-leaning people

Background

Current use of UAVs
- The introduction of UAVs has exponentially grown to the state of a phenomena and has been integrated in multiple industries. UAVs are being implemented across multiple industries due to the creative exploitation of its features that can get some companies the cutting edge they need to stand out. At the moment the UAV market is expected to exceed $8.35 billion by the end of this year.[1]
- The police use of UAVs is becoming a more popular issues due to many local governments seeing the potential of utilizing the unique features a UAV can bring. This has paved the way for government agencies support of the use of UAVs by police officers with the state of North Dakota being the first state to allow police to equip drones.[2] Soon to follow are states like Tennessee and South Carolina which are both in the legislative process to soon follow.[2]

Privacy Concerns
- The current literature emphasizes the dire need to take into consideration the privacy of those affected. Especially how these concepts should be considered in the design process, this is especially highlighted through Anderson's principles of Privacy by design.[3]
- Past studies have looked at the public's perception of UAVs and the privacy concerns that come along with their use in aiding police officers. It has been highlighted that for the public both fear and disgust mediate their relationships.[1]

Hypotheses

H_a: In general, at least one of the following demographic variables (age, gender, income, number of children, number of vehicles that pass by the participant's residence per day, number of vehicles owned, political affiliation, and relationship with local police) would be a significant predictor of privacy concerns.

Figure 1. An example of the scenario presented to the participants along some of the questions on the previously validated privacy scale.

Methods

Participants
- 92 Males & 110 Females
- M_{age} = 36.88 (SD = 12.15)
- Participants were recruited through Amazon's © Mechanical Turk © (MTurk)

Methods
- Participants were first presented an informed consent form and after signing electronically they were presented with the instructions on completing the survey
- The following section of the survey was a hypothetical scenario that read
  "Imagine a situation where your local police department announces plans to use unmanned aerial vehicles (UAVs) to patrol the skies of your neighborhood 24/7 (day and night) every day of the year in order to assist with police activities. These UAVs would fly at various altitudes and provide aerial coverage with video feedback of the entire neighborhoods at all times."
- In the next section of the survey, participants were then asked to respond to questions focusing on the demographics of the participants, with things such as:
  Age, gender, income, number of children, number of vehicles that pass by the participant's residence per day, number of vehicles owned, political affiliation, and relationship with local police
- Participants were debriefed and paid upon completion

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Results

- We ran a linear regression analyses on the results gathered from our participants in hope to understand the relationships our selected predictors had on UAVs privacy concerns
- The regression analysis allowed us to create a regression equation that would help determine what predictors were key in predicting a participant's score on the UAV privacy scale.
- All eight predictors (age, gender, income, number of children, number of vehicles that pass by the participant's residence per day, number of vehicles owned, political affiliation, and relationship with local police) were ran through the regression, with the score on the UAV privacy scale being the dependent variable.
- The output of the model extended our preliminary data and contained three significant predictors which were: age, number of children, and and the number of vehicles that pass by the participants residence in a given day.
- The regression equation can be found below:

$$Y = 0.754 + 0.010X_1 + -0.121X_2 + 0.00007109X_3$$

- In this equation Y is the predicted score in the UAV privacy scale, and X_1, X_2, and X_3 are age, number of children, and the number of vehicles that pass by the participants residence in a given day respectively.
- A backward stepwise regression was used to eliminate statistically insignificant predictors

Conclusion

- When conducting UAV missions in public or near housing residences, it is important to take note of the privacy concerns raised by residents and other citizens in the area.
- These findings reveal that a person's age, number of children, and the number of vehicles that pass by the participants residence in a given day are key predictors in determining a privacy score.
- As a participants age increase their privacy concerns increases as well, showing that the aging population are not as comfortable with police usage of UAVs as the younger generation. One opinion on these results is that they can be attributed to the stereotype that older adults are against modern technological advances
- The correlation shows that the more kids in a participants family then the lower there privacy concern score are. Therefore those in smaller families do not feel as comfortable with police usage of UAVs. One possibility behind this is due to the fact that participants in big families are used to being in scenarios where there privacy is limited therefore it is possible that they no longer threatened by scenarios where the privacy is being threatened.
- The predictor "number of vehicles that pass by the participants residence in a given day" was used to help infer if a participant lives in a rural area or in a metropolitan area, with the logic being if you live in a rural area less cars will pass by your residence in comparison to someone living in a metropolitan area who one could expect would have numerous cars passing by the participants residence.
- Future studies should look more into the findings of this study and see if a more concrete explanation of why these predictors had there recorded effects on participants privacy score than those loosley theorised. This should be emphasised due to the fact that this study's participant pool was collected using a convenience sample due to nature of Amazon's MTurk which prevents us from making generalizable claims and should be accounted for in future studies.

Technology, Knowledge & Society

Technology in the Service of the "Health Knowledge Society": Has the Rate of US eHealth Education Increased Over Time?

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Description

Exploring concepts from the field of consumer health informatics, a combination of healthcare, communication, and information technology, might point to solid reasons to celebrate advancements in the US becoming a health knowledge society.

For some characteristics of the American population, eHealth education rates have significantly improved over time.

Responses from 33,080 adult participants in the 2015 National Health Interview Survey (NHIS) conducted by the Centers for Disease Control and Prevention provided recent data about health information Internet search rates of US adults (IPUMS, 2017).

Research Questions

Research Question 1: Are more adults in the United States looking up online health information now than in previous years?

Research Question 2: What characteristics distinguish adults in the United States who search for online health information from people who do not go online?

Percent of eHealth Education by Year
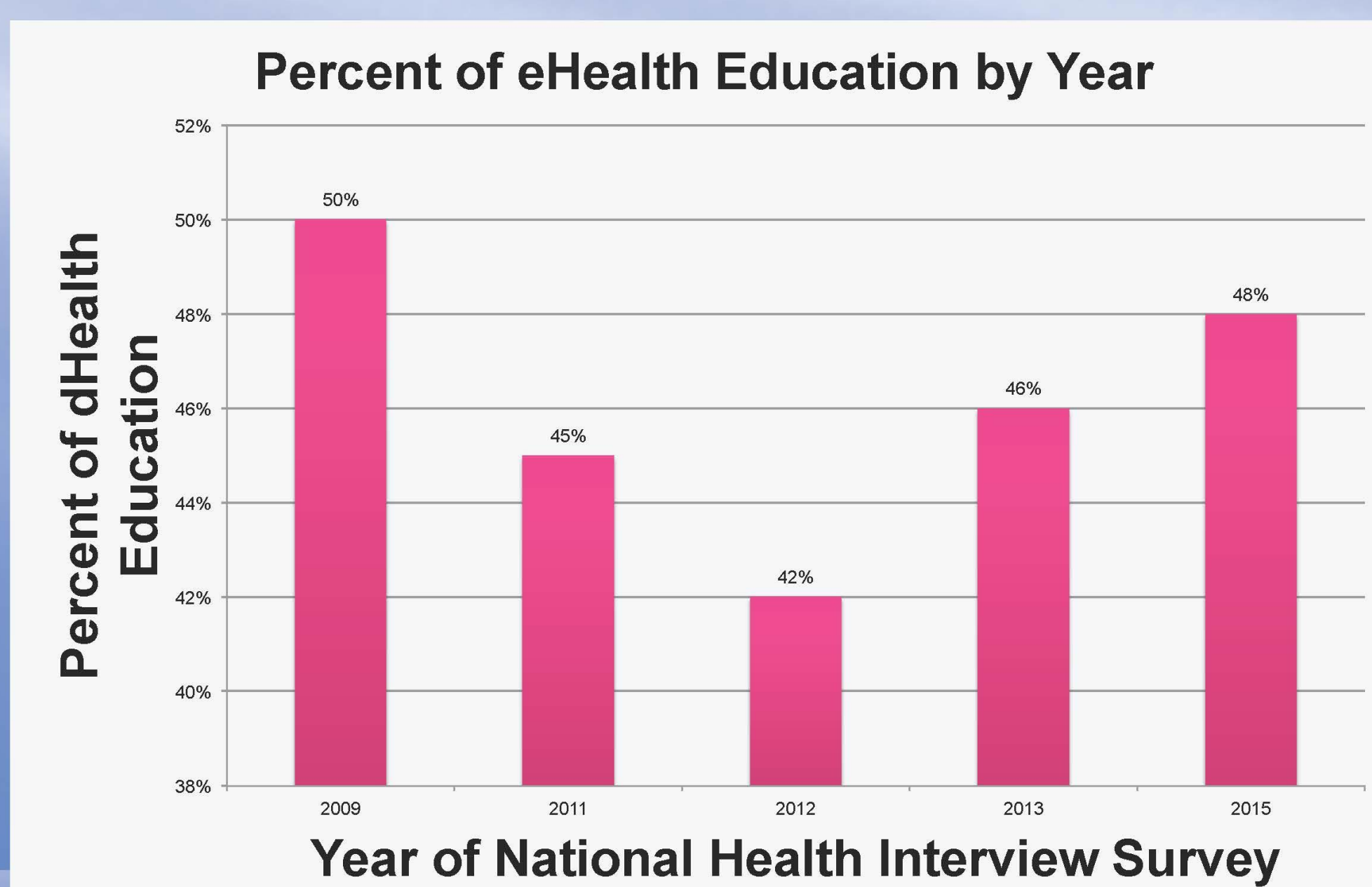
Data Analysis and Results

- 2015 NHIS participants were asked if they looked up Internet health information on a computer in the previous year.

- Chi-square tests compared that data to an analysis of 115,089 adults asked same NHIS question, surveyed in years between 2009 and 2013 (Sandefer et al., 2015).

- Improvement in online health-information-seeking was significant for most groups.

- The characteristics of groups whose rates improved were women, all ages by decades, those with less than college degrees, those with incomes under $50,000, the employed, all races and ethnicities, and all levels of health status.

- On the other hand, four groups did not experience increased rates.

- Internet search rates for men, those with college and post-graduate degrees, those earning higher incomes (over $50,000), and residents geographically located in the Midwest did not significantly grow over those four baseline years (2009 to 2013).
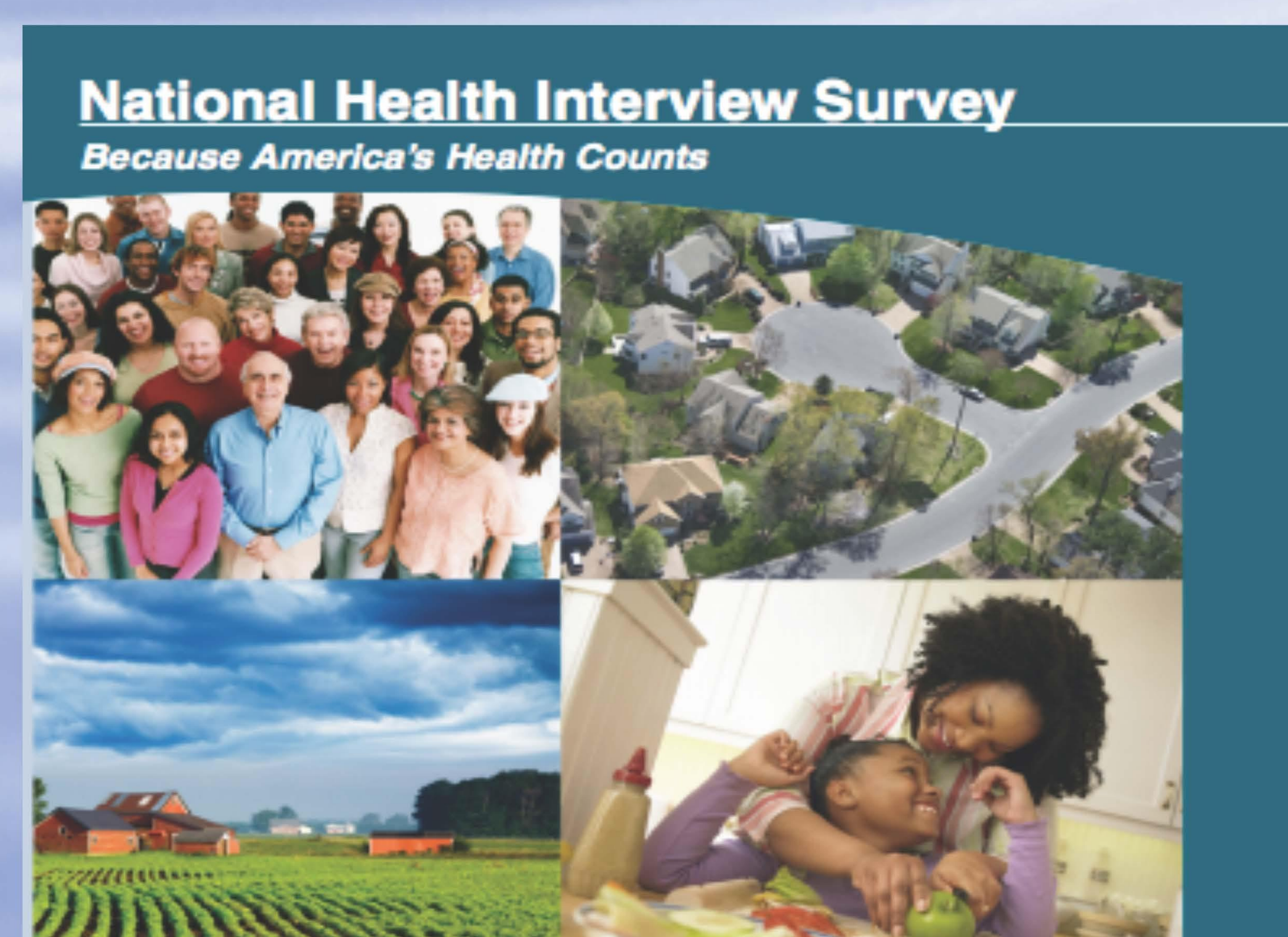
Conclusions

The adult Internet search rate for health information in the United States appears to be increasing in recent years, after an initial slight downward trend. See graph at left.

This research supports celebrating the successes of professionals in the field of consumer health informatics who have paid attention to helping Internet searchers find answers to health education questions.

Percent eHealth Education Users

Gender	2009 - 2013	2015	P <
Female	50%	60%	0.001
Male	40%	40%	NS

Education	2009 - 2013	2015	P <
< High School	13%	15%	0.001
High School	31%	33%	0.001

Improved rates
- Women
- Less educated

Improved rates
- Lower income
- West region

Income	2009 - 2013	2015	P <
< $35	32%	36%	0.001
$35K – $50K	43%	48%	0.001

Location	2009 - 2013	2015	P <
Midwest	47%	49%	NS
West	48%	51%	0.001

NS = Not Significant. Chart shows selected comparisons of Data

National Health Interview Survey
Because America's Health Counts

Research Challenge

Sandefer et al.'s published data documentation only gave percentages and total sample size.

So the research made full use of Gerritsen's undated online article "How to Do a Chi-square Test When You Only Have Proportions and Denominators."

Essentially, researchers construct a cross table, and record calculated results on a spreadsheet line-by-line.

To see if changes occurred in the pattern of adults looking up online health information, Chi-square tests were conducted on the subcategories of variables used by Sandefer.

The line-by-line approach required thirty-four individual Chi-square tests.

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Rethinking Pedagogy 2.0: Mapping Best Practices in Higher Education to Design Transformative Learning Experiences

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Abstract

Web 2.0 social software is actively transforming teaching and learning in higher education. Given that about ten years have passed since the proposal of McLaughlin and Lee (2008)'s pedagogy 2.0 framework for integrating Web 2.0 technologies with pedagogy, coupled with limited exemplar empirical pedagogy 2.0 practices, we adopted pedagogy 2.0 to review the teaching practices and reconceptualize Web 2.0 technology use in higher education. This review explored over hundred empirical articles that involved leveraging Web 2.0 technologies with teaching and learning practices in higher education. We mapped out ten best practices that fit the pedagogy 2.0 framework and subsequently provided an outcome-based analysis of using the framework. The findings revealed that McLoughlin and Lee's pedagogy 2.0 framework has the potential to design the transformative learning environment in higher education. To this, the reliance of empirical-based research added to the framework's credibility. However, the framework has avenues for improvements that involve the definitions, missing components, and the learning outcome-based support to demonstrate the effectiveness of the adoption of pedagogy 2.0 framework.

*Keywords:* Web 2.0, Pedagogy 2.0, pedagogy, higher education, best practices

• Introduction and Background

Web Technology advancement provided enablings for users to facilitate different communication processes. As Fuchs et al. (2010) argued, Web2.0 technologies create the interactive platform for the development of *communicative processes*, while web 3.0 technologies facilitate *cooperative processes* that are integrative in the construction of new information and meaning. With the rise of web 3.0 and *semantic web,* Internet continues to transform computer applications into dynamic applications with collaborative and interactive affordances (Barassi & Treré, 2012)

In recent times, Web 2.0 tools are widely being utilized in educational settings (Palaigeorgiou, 2016). Boulos, Richardson (2009) cited in Palaigeorgiou (2016) also underscored the potential of Web 2.0 tools in the creation of more interactive learning environments. Maramba, and Wheeler (2006) cited in Lee and Teh (2016) argued that Web 2.0 tools have a transformative role towards teaching and learning and that Web 2.0 applications constitute a new technology-based pedagogy in the 21st century referred to as pedagogy 2.0. Grosseek (2009) had also highlighted the potential of Web 2.0 in higher education and emphasised the need for integrating it with pedagogy. To that, Grosseek (2009) expressed the need for best practices in leveraging Web 2.0 tools for teaching and learning procedures. With these posits, which iterate the potential of web 2.0 and the essence of integrating them with pedagogy, there are concerns when it comes to choosing strategies that yield good results..

• Methodology

- **Search site:** Google Scholar, *Eric*, E-learning journals
- **Search keywords:** "Pedagogy 2.0 + higher education" "Web2.0 pedagogy + higher education" "Web2.0 teaching" + "higher education"
- **Searching criteria:**
1. Peer-reviewed journals
2. Use of web2.0 with pedagogy in higher education
3. Evidence-based practices or case studies with learning outcomes
4. 2007-2017 After McLoughlin & Lee (2008)

250+ 110+ 10
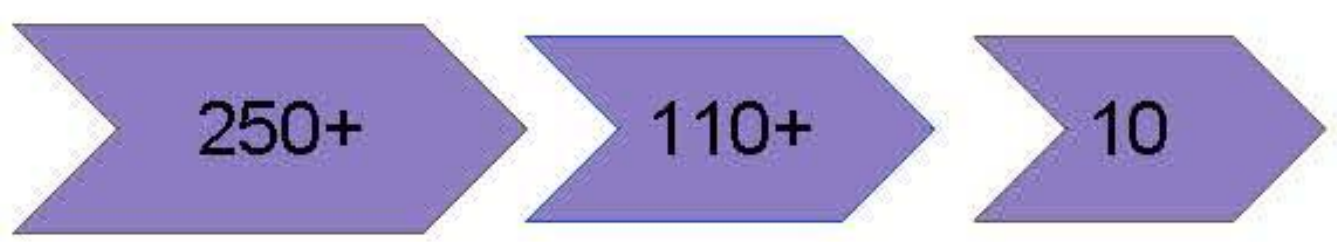
• Research Questions

McLaughlin and Lee (2008) initially proposed Pedagogy 2.0 as a framework that combined teaching practices with Web 2.0 social software tools. This framework responded the call of reconceptualization of teaching with the web 2.0 movement and advocated a learning model in which students are empowered to participate, communicate, create knowledge, and exercise a high level of agency to control over the learning process (McLaughlin & Lee, 2008).

However, with almost 10 years passed after the examples of Pedagogy 2.0 practices, the field is embracing recent innovative pedagogy to embody the pedagogy 2.0 practices. Additionally, in building the pedagogy 2.0 practices, the 3P model was not adopted as a model to analyze the practices precisely and seamlessly. It has to be noted that some exemplars were not built on the empirical studies, but through a diverse of sources such as weblogs (eg: Lamb, 2007). The reason could be due to the emerging of web 2.0 technologies and limited exemplar teaching practices and empirical studies that fit into this realm.

Therefore, it led to a strong rationale to review the research studies in the field and use pedagogy 2.0 as a theoretical and analytical framework to select the studies and analyze the studies, in particularly align the practices with 3P components, to reinvigorate the best practices for using pedagogy 2.0 in designing curriculum and lessons in higher education.
- How is Pedagogy 2.0 used in higher education?
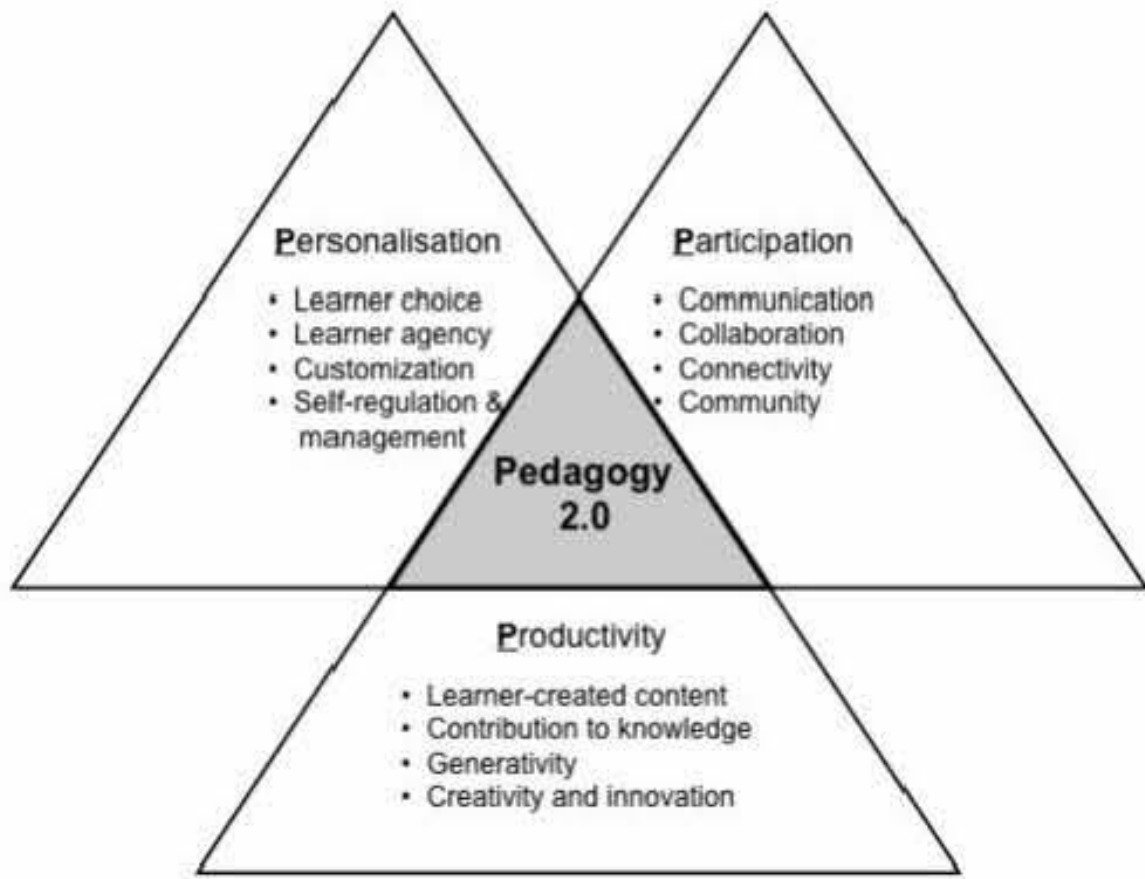- Is Pedagogy 2.0 an effective framework to design learning environment in higher education?

• Conclusion

- Peoagogy 2.0 is used in higher education for various kinds of teaching and learning activities. The activities fall into 3 categorizations; participation, productivity and personalization.
- The learning outcomes were positive and negative, which suggests that each application of Pedagogy 2.0 in higher education is not guaranteed to yield positive outcomes.
- Findings indicated that there were needs to provide more guidance in enriching the elements of 3P model.
- Further research could investigate instructional-related outcomes and improve the Pedagogy 2.0 model.

• Theoretical Framework (Pedagogy 2.0)

McLoughlin & Lee (2008)

- Mcloughlin and Lee (2008) defined Pedagogy 2.0 as the "pedagogy that integrates Web 2.0 tools that support knowledge sharing, peer-to-peer networking, and access to a global audience with socio constructivist learning approaches to facilitate greater learner autonomy, agency, and personalization (p.)."
- *Personalization* is the element that acknowledges learner's access to ideas, resources and communities in supporting learning and building self-regulatory skills.
- *Participation* suggests that learners are engaged in a learning environment with global reach of learning, dialogues, scaffoldings, connections in networked publics and communities, enabled by technologies and Web 2.0, for the purposes of collaboratively idea sharing, inquiry, and problem solving.
- *Productivity* is built upon the previous two elements that highlighted learners' agency and participation. This element focuses on the active and autonomous engagement of learners in the learning process.

Personalisation
- Learner choice
- Learner agency
- Customization
- Self-regulation & management

Participation
- Communication
- Collaboration
- Connectivity
- Community

Pedagogy 2.0

Productivity
- Learner-created content
- Contribution to knowledge
- Generativity
- Creativity and innovation

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• Results and Discussion

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1 0	Virtanen & Rasi (2017)	University of Lapland, Finland	The study used web2.0 technologies to support the developing and implementing a Problem Based Learning course entitled in Teaching and Learning to support students' meaningful learning, and to enable easy storage and sharing of ideas produced by the students. The course aims to teach students to analyze the pedagogical functions, producing and using videos to support learning. The course include the cyclical PBL process with introductory meeting, final assessment meeting, 6 times of tutorial session and independent knowledge acquisition sessions.	**Participation** Since students are not familiar with the Web 2.0 application that will be used in the class, so the course consisted the introductory meeting, six PBL tutorial sessions, 8 workshops for students to participate the session for independent knowledge acquisition, and collaboratively brainstorm ideas to solve the problems presented to them. The course also provided interactive online wall, whiteboard to have students post notes, blog, chat, and mind mapping online. **Productivity** The course used a video production-supported PBL model that combines face-to-face tutorial sessions and independent knowledge acquisitions through hands-on workshop. Students are asked to produce videos about the phenomena under study, integrated in a problem-solving cycle. Besides producing videos, students used the web 2.0 application to produce ideas in online wall, whiteboard, blogs, chat and do mind mapping. Students are asked to write a report that presented and discussed the pedagogical rationale for the video created. **Personalization** The students were responsible for the whole learning process in video production: writing the synopsis and manuscript, planning the shoots, filming and editing. The workshops are supervised by a teacher to facilitate the session. Students have the choices to produce in the topic, choose the area they intend to explore more and follow the line of inquiry. The multi facets of web 2.0 tools allows students to present and exchange their ideas virtually and interactively and store their product of knowledge acquisition.	Blog, interactive online wall, interactive whiteboard, backchannel chat, online mind mapping tool	+	Five students who took the course completed the 5-likert questionnaire related to learning process, learning resources, and learning outcomes. Followed with a group interview to collect students' experience with the PBL and Web 2.0 technologies. Students gave the highest ratings for the statement measuring the active, multiple perspectives-oriented, and creative characteristics of meaning learning, and revealed favorable ratings for collaborative, cooperational, and conversational characteristics of learning. The focus group interview revealed experience of the active and self-directed characteristics of their learning process, to acquire, evaluate, and apply information. For the emotions study. Statistical tests include t-tests and ordinary least squares regression tests. As revealed in the learning process, the highly frequent words are "trust", "challenge", "interest", "joy" and "satisfaction".

(Excerpts of the best practices)

The discussion addressed the following sub themes we found across the best practices through positive outcomes and negative outcomes:

Positive outcomes:

Personalization

1) *Access and Preparation:* Ensure the access for students to use the web2.0 tool and provide scaffoldings to use the tools.
2) *Collaboration:* Establish the communication between class members and build peer-relationship and communities.
3) *Connectivity:* Connect the class virtually or connect learners in a broader reach.
4) *Community:* Track the ind the collaborative process is easy, but hardly for the community building process during using the tools.

Participation

1) *Creativity:* Learners in the cases cited in our paper, were involved in content generation that required varying levels of creativity.
2) *Originality:* The creative nature of the learning activities caused learners to come up with their own authentic ideas with the aid of available Web 2.0 tools.
3) *User-generated content:* The learners created their own content with Web 2.0 tools.

Personalization

1) *Learning environment allows for learner Agency:* Offers learners the opportunities to share their knowledge, make connections and achieve their learning artifacts (Yew, Gibson & Teasley, 2006); navigate the digital tools and shape their own understanding of the tools to integrate them into their own practices (Ching & Hsu, 2011), and have the self-accountability in direct their own learning process (Virtanen & Rasi, 2017).
2) *Learner Choice and Customization:* Ihe instructors and the digital tools offer the options to customize and create learning based on their decisions.
3) *Learner-focused assessment* Not only the pedagogy shifts the focus to learner centered, but the assessmed are parallel to the learning objectives as well.
4) *The challenge between autonomy and scaffoldings:* It is difficult to quantify and decide how much agency that an instructor should offer and how much scaffoldings are sufficient to support the learning, to enable the knowledge construction naturally occurs, as well as serving as means by which learners can capture evidence of their authentic performances in situ within these contexts.

Negative Outcomes:

1) Be aware of aligning the content knowledge with the learning objectives using the tool.
2) When designing the online experience, if students are required to provide more time and effort in navigating the technology and feel the meaningful in the process needs to be reconsidered.

e-Learning & Innovative Pedagogies

Integrating Digital Technologies into School Geography Fieldwork

Practices and Meanings in the Teachers Training

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UNICAMP

Introduction
The appropriation of digital technologies by teachers in training is an important issue in the development of innovative pedagogies. Practices and meanings experienced in this context provide knowledge that underlies much of the work done by teachers in classroom everyday. Considering this approach, we conceived a topic of study in a course of geography teachers education that introduces the use of digital resources in the planning of a local fieldwork in the city of Campinas, Brazil.

Abstract
The objective of the topic of study was to integrate and reflect on the use of new technologies in the accomplishment of a powerful and traditional methodology to geographic literacy. This methodology, called geography fieldwork, may have many didactic approaches according to the intentions of teachers in the learning process, but something that is central in all of them is the purpose of putting students in direct interaction with elements of spatial reality itself, so, they can understand places and different geographic phenomena beyond textbooks and images used in classroom. Considering the popularization of mobile devices and the development of many cartographic apps and geovisualization programs, we proposed to geography teachers in training some activities that sought to explore this kind of digital resources in the preparation of a school geography fieldwork. Looking for the meanings produced by both the teacher trainer and by the future students through these activities, this poster presents some results obtained by the analysis of their practices and perceptions.

Relevance
There is a consensus on the importance of integrating digital technologies in education to promote literacy practices that are able to dialogue with the demands and needs of contemporary society, as well as with the context of the young people's lives. However, generally the uses that are made of technologies in schools are strongly influenced by already established practices and routines, representing only the exchange of older technology for a newer one rather than the transformation or development of new practices. As Lankshear and Knobel (2007, p. 7) states about the significance of the new technical objects, it has mostly to do with "how it enables people to build and participate in literacy practices that involve different kinds of values, sensibilities, norms and procedures and so on from those that characterize conventional literacies". Fieldwork is a conventional literacy in school geography and through the activities we propose in the topic of study for the future teachers, we look to understand the contributions that the use of new technologies within this practice may bring to geographic education nowadays.

Research Question/Hypothesis
Currently, digital technologies enable new forms of interaction with geographic space. Open and collaborative mapping applications, virtual reality and 3D visualization environments, augmented reality games, communities based on traffic information sharing, and social networks with localization resources have increasingly been involved in society's spatial practices. How could these technologies engage teachers and geography students in new educational practices? What are their contributions to the development of geographic fieldwork linked to the contemporary spatial practices? Our hypothesis is that the answers to these questions may come from the experiencing in using digital technologies in the context of teachers education.

Participants
About 30 students attended the course, forming groups of 3 to 4 people to carry out the activities. Some of these students attended the course in the morning class and another part in the evening class.

Methodology
The integration of digital technologies in the study of the topic "Fieldwork in Geography Teaching", proposed in the training course of geography teachers, involved 4 different moments:
1. A discussion about the different didactic approaches of the fieldwork in geography teaching and on the mobility acquired nowadays since the emergence of cyberspace and mobile devices, and their relation with the figure of the "ubiquitous reader" (Santaella, 2013);
2. The use of mapping and visualization resources associated to Google Maps (GM) in the planning of a fieldwork plan for Campinas downtown to be hypothetically carried out with students of basic education;
3. The encouragement of the use of mobile devices and different apps in the realization of a pre-field to Campinas city downtown, aiming to raise elements and information for the development of the hypothetical school fieldwork;
4. The elaboration of a school geography fieldwork proposal to Campinas city downtown considering the use of digital technologies to explore the figure of the "ubiquitous reader".

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Acknowledgements

Results
Analyzing the data collected through the observation of participants' practices at moments 1, 2 and 3, and through the content analysis of the proposals elaborated at the moment 4, we identified that the meanings produced for the integration of technologies into school geography fieldwork covered four different directions, as shown in the table below:

It was raised the possibility that geo-visualization and virtual reality programs will replace fieldwork practices in school geography. Some participants considered this possibility interesting since schools have restricted the implementation of out-of-school teaching activities. Other participants understood that nothing replaces "real" fieldworks, as many aspects of geographic reality cannot be observed and felt virtually.	It has been identified that digital technologies may expand the scope of practices already common in the fieldworks of school geography. Taking photos of places, using maps to find yourself in the plan and locate points of interest, recording and sharing observations, comparing different points of view and perceptions, producing group material, etc. According to the participants, all of these practices would gain even more power through the use of smartphones and their specific applications.	Many practices associated the use of digital and analog resources in the fieldwork in order to mutually overcome the limits imposed by each one. For example, maps made digitally were thought to be used in its printed form during the field as not all students could have smartphones to view the digital maps. It was also thought to use the printed map along with photos taken and viewed through the smartphone to compare different forms of spatial representation.	New technologies have also emerged as a possibility to create new practices for geography fieldwork. One group considered associating some downtown places to multimedia content, via QR Code, what would enable a more interactive reading of the landscape transformation. Another group proposed to access the instagram at each field stop to visualize local images and understand the uses of space from the intentions published in the social network.

Students in pre-field in downtown. Picture made by the author
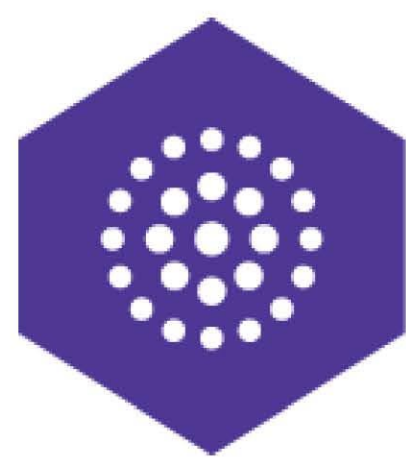

Image obtained on the website Pró-Memíria de Campinas.

Summary
In summary we may say that the use of new technologies in school geography fieldwork may have different meanings. In some cases they are seen as replacing a common practice, as if their use served, or should serve, to accomplish the same things that were done without them. In other cases they are perceived as capable of enhancing or complementing what has already been traditionally accomplished, extending the reach of certain practices or exceeding their limits. And yet, finally, new technologies may be understood as capable of founding practices that engage students in new ways with the space and allow new insights and understandings about it.

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