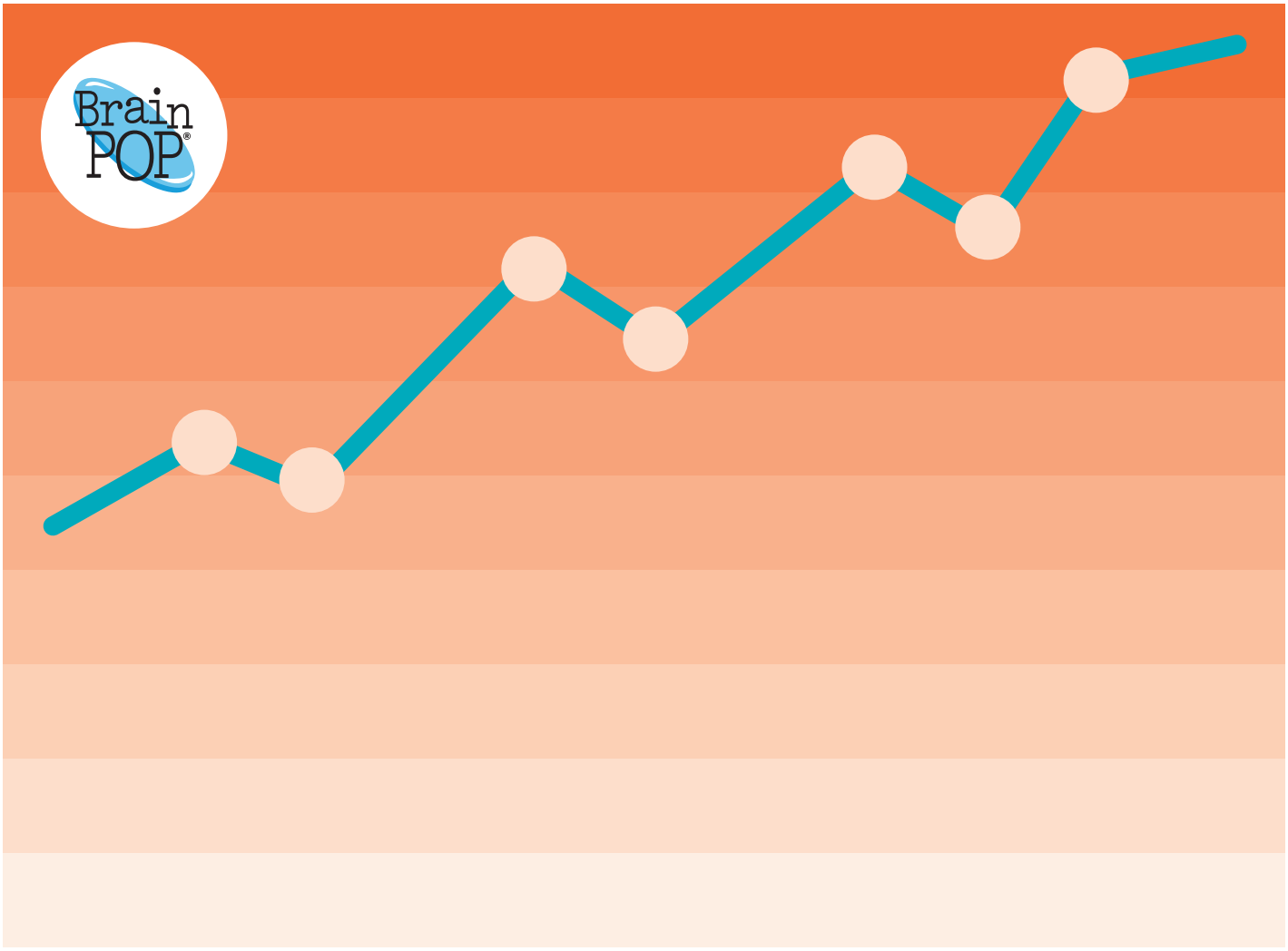

THE IMPACT OF BRAINPOP® TRAINING & CERTIFICATION

TABLE OF CONTENTS

For any feedback on this report, email feedback@brainpop.com.
Released January 2018.

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EXECUTIVE SUMMARY

This report, written and published by BrainPOP®, was conducted to determine the effectiveness and impact of the BrainPOP Certified Educator program. This report has two objectives: 1) To explore if BrainPOP usage increases after completion of our certification process; and 2) To explore how Certified BrainPOP Educator propose to change their teaching practices after participating in the certification process. The research revealed that participating in the certification process results in increased usage of BrainPOP in the classroom. To accommodate increased usage, educators intended to adjust their teaching practices to incorporate student-centered learning opportunities.

For the first objective, we used a predictive model to study 115 educators from five different types of certification process settings to evaluate whether becoming certified led to increased usage of BrainPOP at the educator's school. For the second objective, we analyzed 180 submissions to identify if participants developed formal plans for incorporating BrainPOP into their teaching and whether the plans involved significant shifts to their teaching practices.

We found that BrainPOP usage generally increased after completing the certification process. When the certification process included an in-person component, it was generally more effective than the online-only certification process. The population with the most consistent increase were educators who had prior experience with BrainPOP. This finding indicates that despite already having experience with BrainPOP previous to the certification process, usage still increases after participation.

Educators expressed excitement and confidence in integrating BrainPOP tools after completing the certification process. 65% of educators who completed certification showed intent to shift to more progressive, student-centered pedagogical models when integrating BrainPOP into their teaching. Their intended teaching practices using BrainPOP mimics the structure of the certification process, for instance including differentiation and pause points. Educators expressed comfort in teaching more complex/sensitive topics utilizing BrainPOP's tools. Educators are excited to use BrainPOP because they believe that the resources we offer will excite their students about learning. The primary practices educators plan to add are collaborative practices, differentiation, and assessment. The certification process demonstrates for educators how to integrate technology in seamless and effective ways.

BACKGROUND ABOUT THE CERTIFIED BRAINPOP EDUCATOR PROGRAM

The Certified BrainPOP Educator (CBE) program began in mid-2014 and is ongoing today. The program's goals are to familiarize educators with BrainPOP products and model effective practices. It is the hope that educators who complete the program will serve as trainers for other educators in their school and geographic area. In addition to increasing usage of our products, we also hope to inform teaching practices and promote productive integration of technology in classroom spaces. As one part of the process, educators create a report explaining how they intend to integrate BrainPOP in a future lesson plan as well as if and how their teaching style will change to accommodate their use of BrainPOP.

PART 1: BRAINPOP USAGE

One part of the study explored whether participating in the certification process resulted in increased My BrainPOP® (MBP) onboarding in the CBE's schools. As a simple metric for success, we focused on the number of student logins to the MBP individualized account system following the completion of the certification process. Increased total logins at the school shows that CBEs trained others in their school in how to use MBP as well as increased their own usage in their classroom. We used a predictive model to examine what usage would be if the educator had not participated in the certification process. See the Methods section for more details on the model used. **Table 1** reports whether the model output resulted in one of the following: 1) a significant increase in onboarding; 2) no significant increase in onboarding; or 3) not able to make a determination because too little available data. To compare the effectiveness of the different types of certification settings, we assigned them to five broad categories: 1) Online only; 2) School pilot; 3) At BrainPOP headquarters; 4) Conference; and 5) Hosted by a 3rd-party. Except for the first, all other setting categories began with an in-person training with follow up online assignments to complete to achieve certification.

Table 1. *Rate of onboarding following CBE certification*

Training Type	Yes, onboarding occurred	Not enough data to determine	No, onboarding did not occur
Online only	9	1	5
School pilot	4	0	1
At BrainPOP headquarters	16	2	0
Conference	49	2	19
Hosted by a 3rd-party	5	0	2
Total	85 (73%)	5 (4%)	27 (23%)

Table 1 indicates that 73% of educators who completed the entire certification process led to an increase in their school's BrainPOP usage. When the certification process included an in-person component, it yielded greater increase in usage than online-only settings. 70% of educators who began in certification at a conference were deemed successful in raising the login numbers in their respective schools, while 27% were unsuccessful. While trainings at BrainPOP headquarters were the most effective, there were increases in BrainPOP usage across all setting categories following the certification process.

An additional analysis focused solely on educators that had used MBP prior to the certification process. Of the 27 educators that fit this criteria, 81% of them showed increased usage, indicating that they were amongst the educators for which this training was most successful.

The model also allowed us to see how long after completing the certification process an educator began to use the site (referred to as lag time). Examples of a school with and without lag can be seen on **Figures 1A** and **1B**.

Figure 1A shows a lag time of 6 months following the certification process. In Figure 1B, the educator began onboarding immediately following certification. No lag time was recorded for 20% of the educators who completed the certification process. Overall, a lag time is observed between 1 and 16 months for 60% of educators who participated in the certification process. Educators who completed the certification process in February and June have a mean lag time of 6.5 and 3.8 months, respectively, with increases in onboarding coinciding with the new academic year. These results suggest that substantial MBP use may be timed with the beginning of the new academic year.

It is worth noting that the most effective certification settings are only available to educators who live at or are willing to travel to specific geographic locations or conferences. Although the online-only setting was found to be less effective, it can reach any educator across the globe. Additionally, the online-only setting has undergone continual updates and improvements from BrainPOP based on the result of this and other analyses, and future work may show the current version of the online certification process to have higher effectiveness than the version analyzed here. In short, the effectiveness of a particular certification setting should be one of many reasons in the decision for any particular educator to attend any particular certification process.

PART 2: PEDAGOGICAL CHANGES

Part 1 suggests that the certification process promotes increased use of BrainPOP. The second objective of this report focuses on how educators, after completing

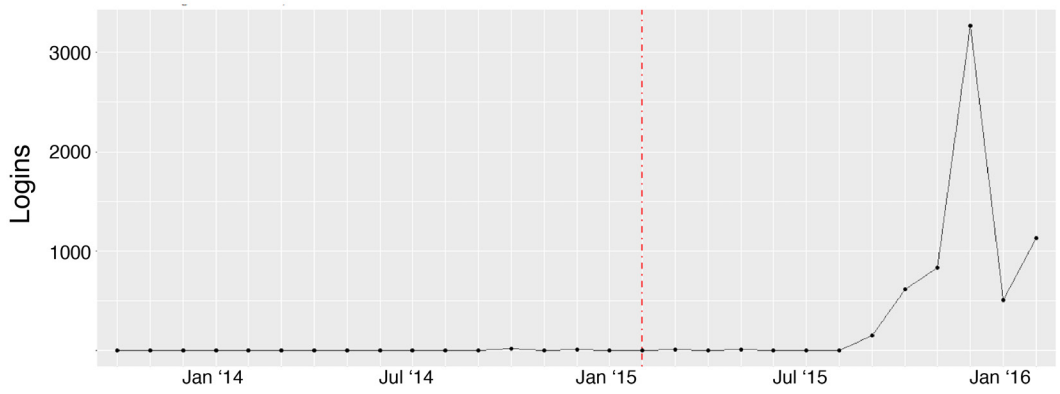


Figure 1A: *Lag following certification process (red line indicates when certification occurred)*

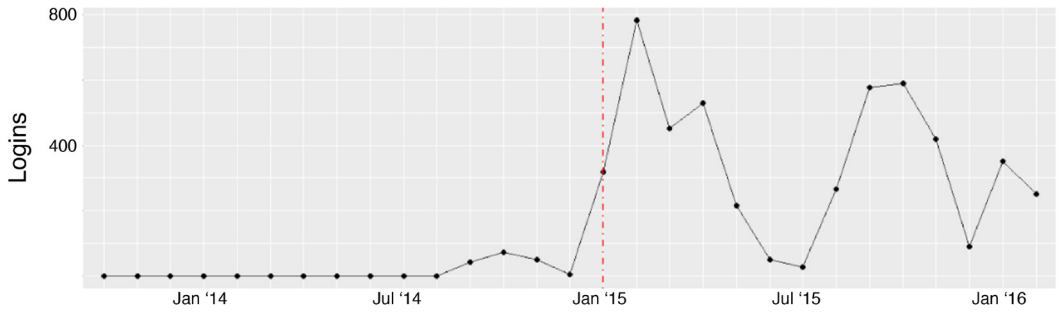


Figure 1B: *No lag following certification process (red line indicates when certification occurred)*

certification, expressed intention of changing their teaching style so that they use BrainPOP in a more dynamic way. One educator writes, “previously I saw these [BrainPOP] as ‘fun tools’, but the course really helped me to see their academic value and how excellent educators can use them to engage and educate students.”

Overview

Educators found value in the structure of the certification process. In a survey of educators who participated in the certification process, 82.6% gave the certification content the highest rating of 5/5 and 99.9% rated the content as a 4 or 5 (n=420). The certification process is intended to demonstrate the full value of a BrainPOP subscription. After participating in certification, 99.3% agree or strongly agree that “a BrainPOP subscription is a good value”.

Although educators do give the certification process high ratings, we went a step further and investigated whether educators were using pedagogical practices modeled in the certification process. As part of the certification process, educators are required to develop a lesson plan that integrates the use of various BrainPOP tools and features, referred to as “integration plans”. The integration plan includes information about the educator’s prior lesson plan as well as the new BrainPOP-infused lesson plan, and thus characterizes changes to teaching practices that occurred as a result of the certification process. We reviewed and analyzed 180 integration plans for depth and indication of pedagogical changes in the way they use the product. Of the 180 integration plans, 152 were submitted after certification processes that including an in-person component and 28 after ones that were solely online. For more details, see the Methods section. These results report educators’ intent to use BrainPOP, but we do not have information about whether the educators have in fact implemented the lesson plans in their classrooms. However, there is still much to be gained in exploring how educators intend to change their lesson plans through the process of incorporating BrainPOP as a resource in their teaching.

Overall, most educators (53%) developed a detailed integration plan. 45% developed non-detailed plans and only 2% did not create an integration plan at all.

Low vs. High Pedagogical Change

To assess pedagogical change, we examined what educators included in integration plans they developed as part of the certification process and what they reported they were revising from lesson plans written prior to the certification process. In total, 34% of integration plans had a significant pedagogical change, 31% had some pedagogical change, 13% had little pedagogical change, and 22% did not express what their prior model had been or else they were teaching the subject for the first time. Overall, the majority of educators who had completed certification (65%) articulated intent to implement some change or great change to their teaching method as expressed in their integration plan.

Relationship Between Plans and Change

Overall, educators who were able to articulate in-depth plans, typically demonstrated the greatest amount of pedagogical change. This section examines the break down and discusses more specifically pedagogical changes resulting from participating in the certification process. The results in **Table 2** reveal that educators who articulated higher level plans also identified the most intended change. Very few educators who articulated less detailed plans had higher change indicators.

Specific Changes

70% of participants supplemented their lessons with BrainPOP, leading to greater changes in pedagogy, or teaching methods. The addition of BrainPOP to their lessons enabled educators more flexibility in their

Table 2. *The Relationship between Plan Detail & Pedagogical Shift*

	Undetermined Change	Low Pedagogical Change	Some Pedagogical Change	High Pedagogical change
No Plan	2%	0%	0%	0%
Low Detailed Plan	11%	8%	16%	11%
High Detailed Plan	9%	5%	16%	23%

teaching (21% replaced their methods with BrainPOP tools and 9% did not provide enough information). The new methods an educator is mostly likely to incorporate into his/her teaching after completing certification include collaborative practices such as group work and group discussion, differentiated instruction, summative assessment, formative assessment, and differentiated assessment. (For a full list of models see **Table 3**, Appendix). The most common dropped model was direct teacher instruction. Overall, it is interesting to note that all of the added practices are ones that are modeled by the presenters during the in-person component of the certification process. This suggests that educators are taking inspiration from the certification and directly applying it to their lessons.

Collaborative Practices

Educators adopted various forms of collaborative practices, including group and partner work as well as class and group discussion. In total, 70 educators said that they planned to have students do group work, of whom 15 were already using this model and 55 added it. Separately, 4 educators dropped this model. Similarly, 11 educators said that they planned to have students do partner work, of whom 5 were already using this model and 6 added it. Separately, no educators dropped this model.

Similar results were seen for the collaborative discussion practices. We found that 48 educators said that they planned to use class discussion, of whom 23 were already using this model and 25 added it. Separately, 8 educators dropped this model. Similarly, 29 educators said they planned to use group discussion, of whom 4 were already using this model and 25 added it. Separately, 2 educators dropped this model.

These results indicate that as a result of the certification process, participants are more likely to include collaborative practices utilizing BrainPOP. Educators stated that they saw BrainPOP as flexible and as a tool that students could use both individually and as a whole group. Educators also stated that due to the ease of using BrainPOP, they were more willing to encourage student-guided learning in groups. Educators felt more comfortable giving students agency using BrainPOP and these pedagogical shifts promoted positive learning experiences for students. See further discussion in the student agency section below.

Differentiation

A total of 58 educators said they planned to use differentiated instruction after participating in the certification process, of whom 4 were already doing so and 54 added it. Separately, no educators dropped this model. The educators plan to have students use various features on BrainPOP, in addition to the movie and the quiz, as they explore a topic. There are a variety of ways the differentiated instruction is being implemented, such as through rotation stations or flipped classrooms. Educators enjoy the ability to differentiate because it allows them to address all types of learners and provides an opportunity for students to create their own content. One educator stated, “This lesson completely revamps the older lesson in that students will now be creators instead of just consumers of information. In addition, the multimedia elements allow for greater differentiation and higher engagement for all types of learners.” Another said, “Now, because of BrainPOP, I can add more creativity and actions to the teaching of this topic. I also love to have data (we use student login) to understand how the students are doing and better differentiate for them.”

Similarly, educators plan to provide students with multiple assessment options to demonstrate knowledge in a way that is most suitable for them. In addition to quizzes, educators reported planning to use SnapThought®, Make-a-Map®, and Make-a-Movie® for assessment. A total of 35 educators said they planned to use differentiated assessment, of whom 1 was already using it and 34 added it. Separately, no educators dropped differentiated assessment. One educator stated, “I now plan to include product differentiation within the formal lesson, so students will now have the option to choose their final product—the focused graphic organizer, the Venn diagram, and Make-a-Map.” Educators clearly value the ability to create unique experiences for their students based on need. One educator stated that the variety of activities BrainPOP offers enables her to, “…have more time to help students individually and differentiate my instruction according to their needs.”

Assessment

In total, 45 educators said they planned to use formative assessment in their integration plan, of whom 2 were already using it, and 43 added it. Separately, 2 educators dropped formative assessment from their prior plans. For the most part, educators planned to use the quiz for formative assessment. As stated earlier, not many of the CBEs indicated that they would change their lesson according to the quiz results. However, many noted that they would track individual student’s progress over time and possibly use the assessments as references during parent conferences. Educators appreciate that BrainPOP products feature multiple forms of assessment. One educator writes, “This integration plan will complement the lesson because BrainPOP Jr.® is a one stop shop for assessment (quizzes and Make-a-Map) and enrichment activities.” These comments imply that educators see BrainPOP both as means of formal assessments as well

as a way to promote excitement about learning, or playful assessment. The educator continues, “I look forward to using Make-a-Map because it includes some but not all keywords and the ability for students to be creative and the additional activities will be great supplements to enrich the learning experience.” Another comment, “BrainPOP is so engaging for students that learning doesn’t seem like work; it seems like play. And the repetition of instruction students get through playing the games and creating concept maps and movies helps the learning stick.”

Additionally, 50 educators reported they planned to use summative assessment, of whom 5 were already using it, and 45 added it. Separately, 3 educators dropped summative assessment from their prior plans. Some educators said they would use the quiz for assessment, while the majority of them would use other tools as a point of assessment. Educators cited Make-a-Map and Make-a-Movie in particular as assessment tools. Educators are assigning Make-a-Map and Make-a-Movie at the end of lessons as a culminating activity. One educator writes, “the pre and post assessment will provide important data for future instruction. The Make-a-Map tool will allow students to be creative while thinking through the concepts.”

Student Agency

Educators highlighted the ways in which students--both independently and in groups--can thrive by taking ownership of their learning. Student agency was not one of the models educators discussed as adding or dropping, but rather a point they mentioned in follow up explanations. Educators described how the inclusion of BrainPOP promotes student agency and excitement. One of the most noticeable changes resulting from the integration of BrainPOP is that students experience more ownership of their learning. One educator states, “They will learn how to use their Chromebooks™ in a different fashion (technology lesson in itself) and be able to be the teacher using their creation. I think I could pass that responsibility more and feel that my students are capable if given the right resources to be the teacher.”

Educators predict that with BrainPOP, students will be more engaged because they are creating their own work which they can refer back to, and that that they will be better able to demonstrate knowledge. Educators note that they are excited for their students to have artifacts that they created on their own and can be proud of. One educator writes, “I think adding the Make-a-Movie will excite the students and motivate them to dig a little deeper and master the material while having fun.” Another educator adds, “Allowing them to interact with the content instead of just being a static receiver of knowledge will hopefully bring quicker understanding of this topic.”

Educators note that students will be able to come up with their own questions and answer them using the tools BrainPOP provides. Not only do students create and share with their classmates, but some educators noted having a buddy system in place in which students teach younger students. The ability to go back and edit work based on feedback from a younger buddy or peer is an additional empowering experience. Educators feel that giving students more options for learning and assessment will ultimately allow for deeper learning and mastery of a topic. As one educator noted, “using BrainPop’s resources in conjunction with [other] resources...will make these lessons more engaging because they are using their knowledge to create something new rather than just regurgitating the information they have been fed.” Another educator notes, “Since this is meant to be a review for students at the beginning of the year, using this plan allows students to work through parts of speech at their own pace and self monitor their understanding/learning.”

Many educators stated that they liked that BrainPOP allowed for students to work at their own pace. One educator wrote, “This will also allow for more individual application of knowledge and interest. Students will be able to work at their own pace, have an opportunity to review all they have learnt from home... and will empower students to be responsible for their own learning.” Another educator wrote, “In the past, this information has been presented to students in a mostly “lecture” type lesson. Giving students the opportunity to use more of their senses (viewing the video) and collaborating with others to demonstrate their learning allows them to have more success.”

A Note about Student Reflection

Many educators made reference to how BrainPOP encouraged and enabled student reflection throughout the learning process. Student reflection was not one of the models educators discussed as adding/dropping, but rather something educators mentioned in their follow up explanation.

As part of the certification process, instructors model how to watch BrainPOP movies in an active way that keeps students engaged, such as using pause points to discuss concepts during the movie. As a result, educators are planning to use these strategies, often pairing pause points with an accompanying worksheet. When a teacher has students passively watch a movie through without pausing, they often have them watch it again in a more active way, such as pairing it with an engaging activity, such as online research. One educator writes, “The students will be able to use technology as a tool for expressing such a complicated topic. They will be able to go back and review the material as well as search for

supplemental materials to help them complete the desired results." Our creation tools allows for multiple ways that students can demonstrate knowledge across a variety of mediums. Additionally, these creative tools are often paired with some kind of reflective piece. This may be an additional assignment or something they need to include in their maps/movies.

Reflective practices are featured throughout BrainPOP. Students often use SnapThought, a reflective note-taking tool, when playing a game. SnapThought enables students to share what they learn with a peer. One educator states, "they [the students] also have to explain their thinking using the SnapThought tool. The way this tool is integrated into the game makes students more likely to reflect on their learning because they aren't having to stop playing to reflect." Artifacts such as the movies and concepts maps are often shared with a classmate or presented in a group share out, such as a gallery walk. As our tool is supplemental, educators often pair our resources with others which creates a dynamic experience as well as further points of reflection. Additionally, all of our individual activities tie together to increase learning and educators are noting this. They are often integrating multiple features into their lessons with which students can draw connections across mediums.

What Methods are Educators Letting Go?

Overall, educators are letting go of the following methods: direct teacher instruction (24) and research (13). Teacher instruction described a more explicit and traditional form of instruction in which educators lecture to the students for a majority of the class period before assigning work. One educator writes, "I have found that I am often a 'talking' head at the front of the room. Incorporating BrainPOP will allow the students to express what they have learned in a whole new way." Research relied on traditional research methods, i.e. utilizing textbooks for information or spending an entire class on Google search engine. Furthermore, many educators stated that they were moving away from using the textbook and/or relying on it less for class instruction. One educator noted, "I believe that the textbook is basic and love that BrainPOP will now take my unit to the next level incorporating videos, games, and assessments. I use the videos as a flipped classroom, assigning them as homework and then springboarding our class discussion the next day from what they learned from the video." These results indicate that educators are moving toward more dynamic lessons in which students discuss topics and are more in charge of their own learning. Whether the reason is that the needed content is in one place or because BrainPOP is easy to implement, educators explicitly state that BrainPOP enables them to teach in new ways.

METHODS

Part 1 Methodology

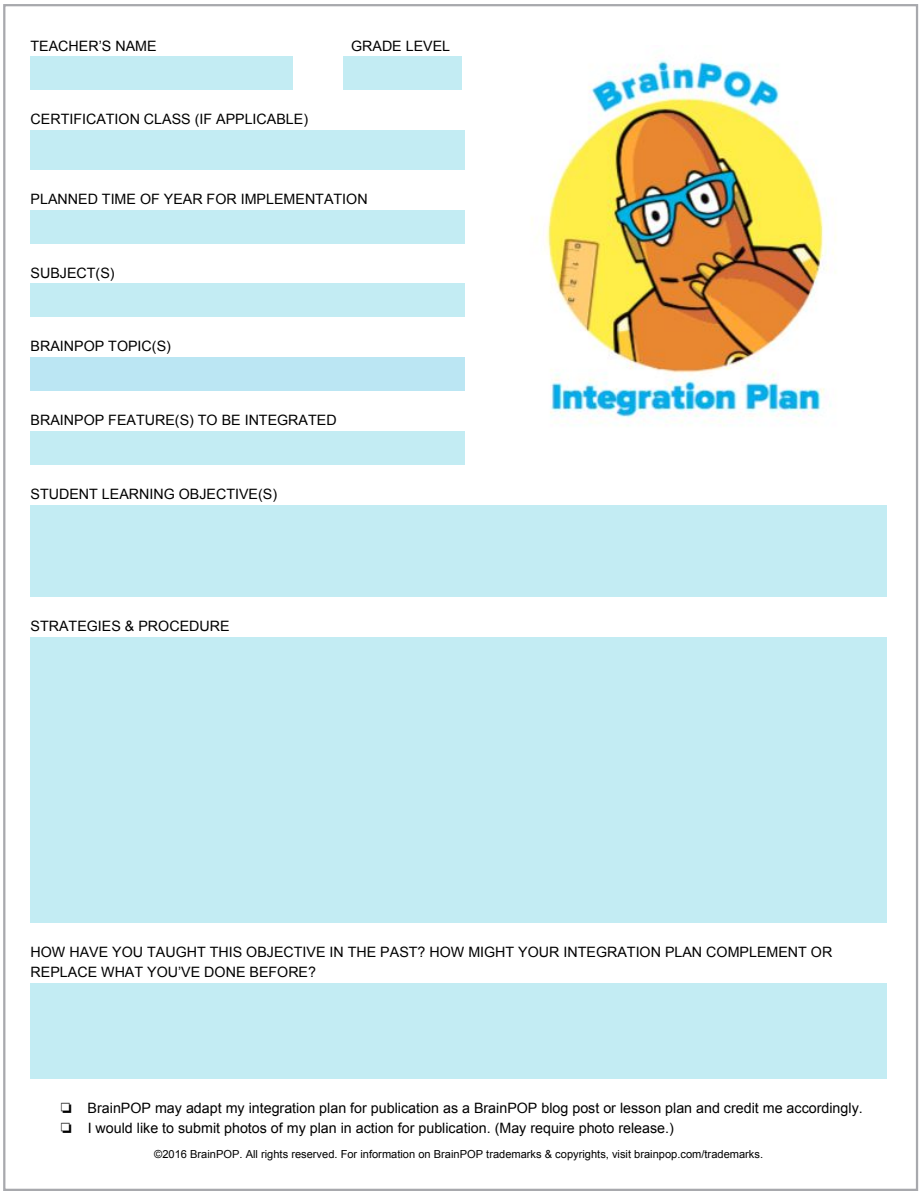
To identify how use of BrainPOP changed after the certification process, we examined the login data (i.e., number of student logins) from October 2013 (launch of MBP) through February 2016. We used a Baysian approach to estimate the causal effect of having participated in the certification process (which was treated as a designed intervention to improve student monthly logins), comparing the school with a CBE to other schools in that school's district that did not have a CBE. Our approach is to estimate the causal effect of a designed intervention (i.e., certification process) on a time series (student monthly login). The model constructed predicts the counterfactual, i.e., how the student login would have changed after the intervention if the intervention had never occurred. From this, we can test the actual CBE school login numbers and see how they differ from the time series. If they do differ and in an upwards trajectory, we can conclude that the certification process was effective. The model was implemented in R using the CausalImpact package. CBEs who went through certification between the start of the program in the summer of 2014 through the end of the 2015 calendar year were included in the analysis.

Part 2 Methodology

We focused the analysis on one of the artifacts that educators were required to produce as part of their certification process. This artifact known as the "integration plan" required the educator to describe how they were going to integrate BrainPOP into a lesson, and to also describe how this BrainPOP integrated lesson plan differed from the way that they previously taught this topic. See a sample integration plan template in **Figure 2** below.

For the purpose of this research, some responses were excluded from the analysis. First, we wanted to ensure an equal spread across CBE certifications. We analyzed all certification processes that occurred between June 2016 and May 2017. While most certification processes had less than 20 CBEs complete the training, the conference training settings could result in over 100 CBEs. To ensure that the results were not overly biased towards the conference setting, we sub-selected 20 CBEs at random from such certification processes. We also excluded certification processes that resulted in less than 5 CBEs. Thus all included certification processes had a somewhat equivalent weight to each other in the analysis. This method left us with 206 CBEs from 17 certification processes.

Figure 2. *A sample integration plan template. Responses to the final two questions were coded for this analysis*



TEACHER'S NAME

GRADE LEVEL

CERTIFICATION CLASS (IF APPLICABLE)

PLANNED TIME OF YEAR FOR IMPLEMENTATION

SUBJECT(S)

BRAINPOP TOPIC(S)

BRAINPOP FEATURE(S) TO BE INTEGRATED

BrainPOP

Integration Plan

STUDENT LEARNING OBJECTIVE(S)

STRATEGIES & PROCEDURE

HOW HAVE YOU TAUGHT THIS OBJECTIVE IN THE PAST? HOW MIGHT YOUR INTEGRATION PLAN COMPLEMENT OR REPLACE WHAT YOU'VE DONE BEFORE?

❑ BrainPOP may adapt my integration plan for publication as a BrainPOP blog post or lesson plan and credit me accordingly.

❑ I would like to submit photos of my plan in action for publication. (May require photo release.)

Second, we excluded reports in which educators intended to run their own professional development at their schools/teach other educators. These educator coaches were excluded because our rating criteria did not apply to their goals for our certification process. When educators submitted integration plans to provide training for others in their school, they did not discuss what styles they were incorporating or dismissing. Rather, they explained how they planned to conduct the training and discussed challenges they foresaw. Many educators had never taught other educators or had not trained others in using BrainPOP previously. Given the unique nature of these kinds of reports, they were excluded from analysis. It is interesting to note that many educators drew inspiration from the certification process as reflected in their integration plans. After excluding educator coaches, the remaining number of reports dropped from 206 to 180, which included 152 educators who completed certification that included an in-person component and 28 who completed an online-only certification process.

The focus of this study were on offline and online integration plans. Thematic Analysis was utilized to create an inductive codebook. Researchers read through 20 responses each and decided on which pedagogical models to include. After this meeting, one researcher continued and coded the rest of the responses. Following the initial analysis, the models where once again grouped together (where possible) to create pedagogical themes. Only those groupings that had instances above 5 were included in this report. Each integration plan was read and assessed for pedagogical models. Educators either explicitly stated a style or it was inferred based on how they described their integration plan.

APPENDIX

Table 3. *Pedagogical Models Included in Integration Plan Analysis*

Pedagogical Model	# of Future Instances	# of Past Instances	# of Educators who had model and kept It	# of Educators who dropped this model	# of Educators who added this model
Differentiated Instruction	58	4	4	0	54
Differentiated Assessment	35	1	1	0	34
Rotation Stations	9	0	0	0	9
Hands on Exploration	17	16	5	11	12
Independent Work	25	24	18	6	7
Group Work	70	19	15	4	55
Partner Work	11	5	5	0	6
Peer Feedback	6	2	2	0	4
Class Discussion	48	31	23	8	25
Group Discussion	29	6	4	2	25
Activate Prior Knowledge	19	10	8	2	11
Summative Assessment	50	8	5	3	45
Formative Assessment	45	4	2	2	43
Research	9	17	4	13	5
Teacher Instruction	14	32	8	24	6