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Review Article

Integrating Animation in English Teaching under NEP 2020: A Case Study of Teacher Training Programme at DIET Roing, Arunachal Pradesh

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Abstract: This research paper investigates the impact of a teacher training programme on animation technology for preparatory-stage English teachers at the District Institute of Education and Training (DIET) in Roing, Arunachal Pradesh. This paper focuses on the use of traditional digital animation tools, such as FlipaClip, and AI-based tools, like Steve AI, to transform selected prose and poetry from the preparatory-stage *Marigold* textbook into animated videos. Pre- and post-tests were conducted to assess the effectiveness of the training programme in enhancing teachers' ability to adapt textual content into animation. The findings reveal significant improvements in teachers' perceptions and capabilities, the transformative potential of technology in English language teaching, as envisioned in the National Education Policy (NEP) 2020.

Keywords: Teacher Training, Animation Tools, English Language Teaching, Technology Integration, NEP 2020.

INTRODUCTION

The National Education Policy (NEP) 2020 states that "technology in education is a journey, not a destination" it implies that technology will continue to develop it will be more effective and less time consuming. Animation is a significant digital resource due to its multimedia capacity. According to Mayer and Moreno (2002), "animation, when used appropriately, can increase motivation and engagement among learners, leading to better learning outcomes" (p. 87). Similarly, Tversky, Morrison, and Betrancourt (2002) suggest that "well-designed animations aid comprehension, especially when illustrating processes that are otherwise difficult to visualize." (p. 244). The use of animation is beneficial for young learners, as it enhances engagement and understanding.

In traditional animation, the process historically involved drawing on physical materials-metaphorically "pen and paper"-in which a series of sequential images were drawn on separate pages to create the illusion of movement. However, with the development of digital tools, animation also becomes digitized, although the fundamental technique remains similar to traditional animation.

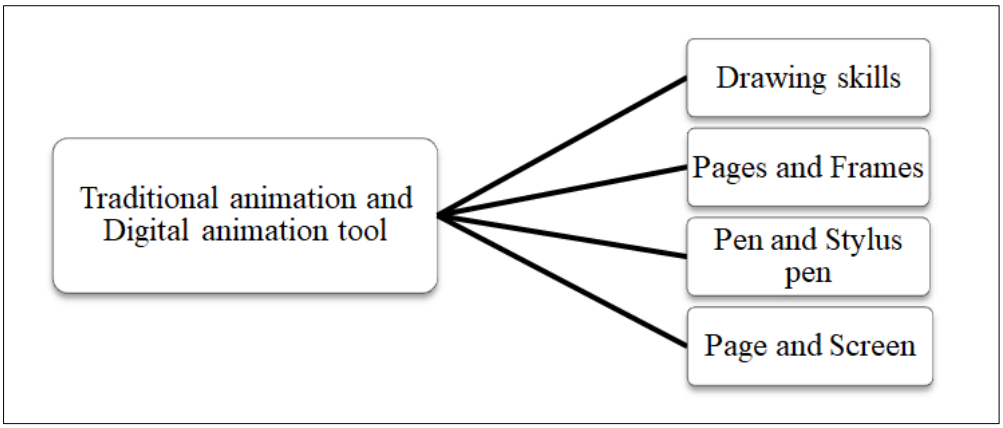

Figure 1: Traditional animation (pen and paper) and digital animation tools (FlipaClip)

Figure 1 illustrates traditional animation, where physical materials are used, each with a limited lifespan. The animation process with traditional and digital tools shares similar techniques. In both, the animator requires drawing skills, whether using pencil and paper or a digital stylus on a screen. Although the process remains consistent, digital tools have made animation more convenient and cost-effective. Digital tools offer various advantages compared to earlier forms of animation; however, the approach to creating animation with FlipaClip is the same as with pen and paper.

FlipaClip, the 2D Animation App

FlipaClip is a 2D animation software created by the three Meson brothers at Visual Blasters, a company based in Miami. FlipaClip is as an important source for the multimedia transformation. This application is good for those at the beginner level, allowing them to engage with animation before moving into more advanced platforms like Studio Clip. Nevertheless it is affordable, as it involves a one-time purchase for unrestricted access to its intuitive interface (priced at 120 ₹ for the pro version till the researcher were using for the present format), in contrast to Studio Clip's subscription-based model. The application adapts to mobile phones and tablets, making it highly convenient for creators. A Stylus Pen (S-Pen) required sketching directly on the screen more precisely.

In the FlipaClip, the creator meticulously assembles the character's actions frame by frame, each governed by a specific frame rate per second (FPS). To illustrate, a scenario may be taken where the character needs to transition from point A 0 0 B if the creator selects a frame rate of 2 FPS, this signifies that for every second of the animated video, the creator must craft or depict the character's motion through two distinct frames.

FlipaClip's strength lies in its hands-on approach, giving creators full control to create animations frame by frame, where creativity become an essential component. It is tech-driven but demands drawing skills and time to fine-tune frames, add music, or sync voiceover. Most participants appreciate about the quality of animations produced with FlipaClip. However, some found the drawing skills required a bit daunting and the time needed for frame adjustments challenging, especially for beginners or those with tight schedules.

From Text to Animation with Steve AI

Steve AI (Artificial Intelligence) is an innovative, patented AI tool designed to make video and animation creation accessible to everyone. Ideal for video creators, marketers, and sales teams, it significantly reduces the time required to produce video. Conveniently, it doesn't require advanced equipment; even a basic smartphone is sufficient for producing animations with Steve AI. The researcher use laptop for generating animation with Steve AI which is convenient due to its larger interface and ease of operation, which are lacking in smaller devices like mobile phones.

Steve AI offers a valuable advantage by enabling the creation of presentations that explain and analyze poetry. Not only does it convert text into animation, but it also provides various themes suitable for classroom presentations. This tool brings lines of prose and poetry to life through animation. Steve AI was much easier for teachers to use during the training programme, and they were able to learn it more comfortably compared to FlipaClip 2D animation. Users simply need to visit the Steve AI website and create an account to get started.

Unlike FlipaClip, where text must be manually adjusted to match the voiceover, Steve AI automates most of the process using artificial intelligence. The following steps are typically followed when using Steve AI: the user selects the text (which can be a poem or prose), pastes it into the provided space on the website, and the tool automatically adjusts the frames, music, voice, and images according to the length of the text. The creator can then fine-tune the animation by adjusting the image, text, and music as needed.

Animation: From Where to Where?

The early forms of animation can be traced back to ancient cave paintings that depicted animals and hunters, suggesting motion in our imagination (Sito, 2006). The first true device for animation emerged with the *Phenakistoscope*, invented in 1832 by Belgian physicist Joseph Plateau and Austrian inventor Simon von Stampfer. This device used a spinning disk of images to create the illusion of movement (Crafton, 1993). In the early 20th century, traditional hand-drawn animation gained prominence. French artist Émile Cohl created *Fantasmagorie* in 1908, considered one of the first fully animated films (Bendazzi, 2016). As animation techniques advanced, Walt Disney revolutionized the industry with the 1928 release of *Steamboat Willie*, the first cartoon to incorporate synchronized sound (Barrier, 2007). The latter part of the 20th century saw the advent of computer animation. Films like *Toy Story* (1995), produced by Pixar, were groundbreaking for their use of fully computer-generated imagery (CGI), signaling a new era in animation (Solomon, 2010).

This paper seeks to empower preparatory-stage English teachers to transform textual content from prose and poetry into animated videos through a teacher training programme. It examines the differences between traditional digital animation tools, such as FlipaClip, and artificial intelligence tools, such as Steve AI, in converting text into multimedia content.

Table 1: Video Links of Sample Animated Marigold Textbook Videos for the Preparatory Stage, Designed Using FlipaClip and Steve AI

Class (Unit)	Use FlipaClip for creating animation video.	Use Steve AI for creating animation video.	Class (Chapter)
III (Unit.2)	https://youtu.be/o2TvWNF9c48	https://youtu.be/4m-YOVyNns8	III (Unit.4)
III (Unit.9)	https://youtu.be/jyhQaSgS3T0	https://youtu.be/udThIOoWQs8	III (Unit.2)
IV (Unit.7)	https://youtu.be/lPorIPXwi54	https://youtube.com/shorts/8g7D3zP1s2E?feature=share	IV (Unit. 7)
V (Unit. 5)	https://youtu.be/tEpbTvLkUqQ	https://youtu.be/Aa7ytTi-FRk	V (Unit.4)

Research Objectives

- To discuss the differences between traditional digital animation tools (such as FlipaClip) and AI-based animation tools (such as Steve AI).
- To conduct a teacher training programme to equip preparatory-stage English teachers with the skills needed to convert selected prose and poetry into animated videos.
- To verify that the training programme has a transformative effect defined as measurable improvements in teachers' perception, willingness, and demonstrated ability to integrate animation tools into classroom practice on preparatory-stage English teachers.

Methodology

- **Study design:** The present study is analytical and descriptive in nature.
- **Study Area and Sampling:** The District Institute of Education and Training (DIET) in Roing, Lower Dibang Valley District, was selected purposively based on its accessibility, administrative cooperation, and availability of infrastructure to support technology-based teacher training. This DIET was also among the few in Arunachal Pradesh with prior exposure to basic digital resources, making it a practical choice for a pilot implementation. The selection of teacher participants was conducted in collaboration with the DIET administration. A total of 50 in-service English language teachers from the preparatory stage (classes III–V) were nominated by school heads. The primary criteria for selection included current teaching assignment at the preparatory level, availability to attend the full training programme, and willingness to experiment with new pedagogical tools. While efforts were made to include teachers from different years of experience and both urban and rural school backgrounds, the sample was not randomized and may reflect certain selection biases. This limitation is acknowledged, and future studies should consider broader and randomized sampling to enhance generalizability.
- **Sources of Data**: The researcher collected information from DIETs to examine how the module designed for the training course, along with the textbooks in use, would achieve its purpose. A total of 50 in-service teachers participated in the three day training/orientation programme. Secondary data were obtained from reviewing previously conducted research published in the area. The focus has always been on how teacher trainees specifically benefit from technology orientation to ensure joyful English language learning outcomes for the learners of English in multilingual teaching-learning setups, as envisioned in NEP 2020. To validate the designed module in a technology format have transformative effect a pre-test and post-test conducted to determine the effectiveness of technology-integrated method of teaching-learning of English at the preparatory stage (school education level 3) using the text books in place.

In this study, the term "transformative effect" refers to a multidimensional improvement in teachers' approach to English language instruction through technology. This includes (1) increased positive perception toward the use of animation tools, (2) enhanced willingness to apply these tools in classrooms, and (3) basic demonstrable ability to produce animated teaching materials using tools such as FlipaClip and Steve AI. While perception and willingness were measured using pre- and post-training Likert-scale surveys analyzed via paired sample t-tests, the ability to produce animations was informally assessed through task completion during the training programme. However, formal rubrics or classroom implementation follow-ups were not part of the study design and are recognized as limitations.

Teacher Training Module and Try-Out

The training module designed for this study represents a comprehensive framework to acquaint teachers with the necessary skills and insights to develop transforming textual content into animated videos. The focal point of this initiative is the demonstration/multipurpose school at one of the selected District Institutes of Education and Training (DIET) in Arunachal Pradesh. It aims to familiarize the trainees with the intricacies of the meticulously crafted training module, ensuring that teachers possess an understanding of the adapting process of textual content into multimedia format.

Rationale behind the Training Programme

The primary objective of this teacher training module is to cultivate creativity among teachers, empowering them to become masters of their craft in the creation of animation videos using FlipaClip 2D animation and Steve AI. The researcher has striven to encourage teachers to utilize this technology in making their classrooms interesting and effective. Recognizing the unique context of Arunachal Pradesh, where technology has not yet been fully integrated into regular classroom scenarios, this training course aim to address various challenges and motivate teachers to embrace technology as a powerful tool for enhancing the learning experience.

Teacher Training Module Course Duration

The teacher training module, spanning a concise yet comprehensive 2 hour 10 minute over a span of 4 days, with an average daily commitment of 130 minutes. This programme focused to integrates theoretical and practical components, ensuring a well-rounded learning experience. In the theoretical segment, the researcher seeks to provide a holistic overview of the technology in learning of English language. Moving into the practical domain, the researcher has the plan to provide information about Steve AI and FlipaClip, imparting valuable technical knowledge on transforming text into corresponding interesting multimedia formats. The approach to the training module has been characterized by an informal classroom setting, fostering an environment where the traditional trainer-trainee distinction dissolves. Instead, it strives to cultivate a cordial, frank, and friendly atmosphere. The overall aims is to make the teacher trainees convinced of the practical usefulness of integrating technology in English language teaching classroom.

The Try-Out

The training programme was conducted at the District Institute of Education and Training (DIET) Roing in the Lower Dibang Valley District (LDV) of Arunachal Pradesh. In-service teachers from various schools within LDV participated in the course.

Table 2: Teachers Profile Participated in the Training Course

Item		**Number**
In-Service teachers (Lower Dibang Valley District)		
Gender	Male	37
	Female	13
	Total	**50**
Teaching experience	Less than a year	-
	1-3 Years	16
	4-6 Years	13
	7-10 Years	11
	More than 10 years	10
	Total	**50**
Attended previous professional development training on technology usage before this course	Yes	2
	No	48
	Total	**50**

Source*: field survey*

Table 2: The Course Structure

Day	Major Theme	Objectives (Summary)	Steps & Activities	Method Used	Time (Min)
I	Fostering Positive English Learning Environment Through Technology	Build positive perception of technology, identify challenges, share strategies	I. Intro to technology II. Benefits of technology III. Application overview IV. Discuss challenges V. Strategies to overcome VI. Teachers' responses VII. Day revision	Lecture, Brainstorming, Interaction	130
II	Using Steve AI to Transform Text into Multimedia	Introduce Steve AI, show benefits, hands-on creation, feedback	I. Introduction to Steve AI II. Benefits III. Practical demo IV. Self-help activity V. Q&A VI. Teachers' reflections VII. Day revision	Lecture, Demo, Peer Review	130
III	Using FlipaClip 2D Animation	Introduce FlipaClip, guide practice	I. Intro to FlipaClip II. Benefits III. Demo IV. Self-help activity V. Q&A VI. Teachers' reflections VII. Day revision	Lecture, Demo, Peer Review	130
IV	Revision Exercises	Review all tools, enhance retention	I. Recap II. Steve AI – discussion & demo III. FlipaClip – discussion & demo IV. Self-motivation discussion V. Day revision	Discussion, Lecture, Demonstration	130

Pre-Test and Post-Test Analysis

The researcher used a paired sample t-test to understand the before and after effects of the teacher training course on technology integration for the English learning process conducted at the District Institute of Education and Training in Roing, Arunachal Pradesh. The test was conducted to see if there is any difference in the use of technology in English teaching and learning at the preparatory stage of school education. Pre- and post-tests were conducted using SPSS (Statistical Package for the Social Sciences) software. The results of the paired sample t-test (pre- and post-test) are highlighted with the help of the following tables:

Table 3

Q1 Paired Samples Statistics					
		Mean	**N**	**Std. Deviation**	**Std. Error Mean**
Pair 1	Pre My perception towards technology in English teaching is positive	3.80	50	.808	.114
	Post My perception towards technology in English teaching is positive	4.06	50	.424	.060

Paired Samples Test										
		Paired Differences					**T**	**Df**	**Significance**	
		Mean	**Std. Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**				**One-Sided p**	**Two-Sided p**
					Lower	**Upper**				
Pair 1	**Pre** My perception towards technology in English teaching is positive **Post** My perception towards technology in English teaching is positive	-.260	.723	.102	-.465	-.055	-2.543	49	.007	.014

A paired-samples t-test was conducted to evaluate the impact of perceptions of teachers toward technology on teaching and learning the English language. The table (8) results show a significant increase in English teachers' perceptions towards technology *(pre-test M = 3.80, post-test M = 4.06), t(49) = -2.543, p < 0.05* (two-tailed). The mean increase in perception of technology was 0.26 with a 95% confidence interval.

Table 4

Q2 Paired Samples Statistics					
		Mean	**N**	**Std. Deviation**	**Std. Error Mean**
Pair 1	**Pre** I Am Willing to Integrate Animation into My English Classroom Teaching	3.96	50	.605	.086
	Post I Am Willing to Integrate Animation into my English Classroom Teaching	4.12	50	.328	.046

Paired Samples Test										
		Paired Differences					**T**	**df**	**Significance**	
		Mean	**Std. Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**				**One-Sided p**	**Two-Sided p**
					Lower	**Upper**				
Pair 1	**Pre** I Am Willing To Integrate animation into my English Classroom Teaching – **Post** I Am Willing to Integrate animation into my English Classroom Teaching	-.160	.618	.087	-.336	.016	1.830	49	.037	.073

A paired sample t-test was conducted to evaluate the impact on the willingness of teachers to integrate technology into the English classroom. The results table (9) showed a significant increase in willingness from the *(pre-test (M = -3.96) to the (post-test M = 4.12), t(49) = -1.830, p < 0.05* (two-tailed). The mean difference in the willingness to integrate technology into the English classroom was -0.160 with a 95% confidence interval.

Table 5

Q5 Paired Samples Statistics					
		Mean	**N**	**Std. Deviation**	**Std. Error Mean**
Pair 1	**Pre** I am familiar with using animation in teaching and learning English for young learners.	1.02	50	.141	.020
	Post I am familiar with using animation in teaching and learning English for young learners.	1.08	50	.274	.039

Paired Samples Test										
		Paired Differences					**T**	**Df**	**Significance**	
		Mean	**Std. Deviation**	**Std. Error Mean**	**95% Confidence Interval of the Difference**				**One-Sided p**	**Two-Sided p**
					Lower	**Upper**				
Pair 1	**Pre** I am familiar with using animation in teaching and learning English for young learners. **Post** I am familiar with using animation in teaching and learning English for young learners.	+0.06	.240	.034	-.008	.128	1.769	49	.042	.083

A paired sample t-test was conducted to evaluate the impact of technology on students' engagement in English learning. The table (10) results showed a significant difference in engagement levels *(pre-test M = 1.02) compared to (post-test M = 1.08).* The t-test yielded a value of $t(49)=-1.769$, with a p-value less than *0.05* (two-tailed), indicating that the change was statistically significant. The mean difference in engagement was +0.06 with a 95% confidence interval.

The paired-samples t-test results (Tables 3, 4, and 5) indicate a significant increase in teachers' willingness to integrate animation into their English classroom teaching after the training programme. Before the training, teachers' willingness was relatively lower (M = 3.96), while after the programme, it improved significantly (M = 4.12). The t-test showed a statistically significant difference ($t(49) = -1.830$, $p < 0.05$), suggesting that the training had a positive impact on teachers' readiness to incorporate animation in their teaching practices.

The paired-samples t-test was conducted based on the training provided using two animation tools: FlipaClip 2D and Steve AI. The results reflect the overall impact of these tools on the participants. The pre-test mean (M = 3.96) represents the stage before teachers were introduced to FlipaClip and Steve AI, while the post-test mean (M = 4.12) indicates a significant improvement in their willingness after the training programme.

Table 10, which reflects teachers' familiarity with using AI tools, also shows positive results—Pre (M = 1.02) and Post (M = 1.08). Although the increase is slight, it suggests that teachers found FlipaClip 2D animation more challenging to use. FlipaClip, as an application, transforms traditional methods of animation into a digital format. However, it still requires a strong foundation in animation skills, such as drawing, frame-by-frame sequencing, and manual adjustments, making it difficult for beginners as noted in the training programme.

In contrast, Steve AI was found to be more user-friendly, faster, and easier to operate than FlipaClip for animating textual content. For example, creating a poem animation in FlipaClip involves multiple complex steps: possessing drawing skills, selecting frames per second (FPS), recording voiceovers, writing subtitles, and organizing scenes—each of which demands considerable time and effort. The researchers itself finds that it took at least seven days to create one animated video using FlipaClip, which proved to be a challenge.

However, Steve AI significantly simplified this process. Animated content could be generated quickly, as the tool automates many of the steps, making it more accessible and practical for teachers during the training programme.

Table 6: Pre- and Post-Training Awareness and Usage of Technology in English Teaching

Sl. No	Item	Pre-Yes	Pre-No	Post-Yes	Post-No
1	Have you attended any professional development/orientation/workshop/teacher training programme related to using technology into English language teaching and learning **(Q3)**	2%	98%	100%	
2	Have you ever heard of the role of AI in English learning before **(Q4)**	10%	80%	100%	
3	Have you use any animation tool/software in teaching and learning of English language **(Q6)**	10%	80%	100%	
4	Have you used animated videos for teaching prose and poem of marigold textbook **(Q7)**	24%	76%	40%	60%
5	Have you heard or used any AI tool in teaching and learning English language **(Q8)**	18%	82%	100%	
6	Have you heard or used AI animation tool or any other traditional animation tool/software for English language teaching and learning **(Q9)**	14%	84%	100%	

Table 6 shows 2% of respondents have attended professional development programme related to integrating technology into English teaching, while the majority 98% have not attended such training programme before the present training programme, every respondent participated in the training programme. Only 10% of respondents had previously heard of AI's role in English learning, with 80% not aware. However, after the training programme, everyone 100% was eventually informed about it. Similarly, 10% of respondents had used animation tools or software in teaching English, with 80% having not done so initially, but eventually, all respondents 100% were aware of using it. A large number of respondents 24% have used animated videos for teaching the Marigold textbook's prose and poetry, while 76% have not. After the training programme, the data shows a split where 40% have used such videos and 60% have not. 18% of respondents have heard or used AI tools for teaching English, with the majority 82% not having heard of them in the pre-test questionnaire. After the training programme, all respondents 100% rated they have heard and are aware of it. 14% of respondents have rated they have heard or used AI or traditional animation tools for English teaching, while the majority 84% rated (No) in the pre-test questionnaire. After the training programme, all respondents (100%) rated they have used and are aware of such tools.

The result 100% indicates their awareness of technological tools. However, this does not mean they can use these tools effectively. It does, however, show they are competent enough to transform a traditional classroom into an engaging multimedia environment after the training programme. The researcher encountered some issues during the training programme. Many teachers have not received any training earlier regarding technology. Although the government has provided technological tools, the teachers were not trained to use them. Training has been provided to a select group of teachers, with the expectation that they will impart their knowledge to their colleagues. This approach needs further streamlining and gearing up for the effective utilization of digital pedagogy as in conformity with the vision and expectation of the NEP-2020.

Suggestion

- Most participants (98%) had not received any prior training in digital or AI-based educational tools. Future programmes should include pre-training orientation sessions and introductory digital literacy modules to better prepare teachers.
- Many schools in rural Arunachal Pradesh lack the infrastructure (e.g., high-speed internet, updated hardware) required to effectively use tools like FlipaClip or Steve AI. State-supported digital resource centers and offline versions of animation tools could be provided.
- Teachers found FlipaClip more complex due to its manual and skill-intensive nature. A tiered training approach could be adopted where Steve AI is introduced first, followed by FlipaClip, allowing teachers to gradually build animation skills.
- Post-training support is essential. Forming teacher peer networks or tech mentors within DIETs and schools can encourage continued practice and sharing of best practices.
- Teachers who successfully integrate technology into their teaching should be recognized through certification, awards, or career advancement incentives to sustain motivation.

CONCLUSION

The training programme conducted at DIET Roing effectively enhanced preparatory English teachers' familiarity and willingness to integrate technology, specifically animation tools, into their classrooms. Pre- and post-test results revealed a statistically significant improvement in both teachers' perceptions and engagement with technology-driven pedagogy, aligning with NEP 2020's vision for transformative, student-centered education. While the training programme led to a significant increase in teachers' willingness and familiarity with animation tools, it is equally important to assess their actual ability to apply these tools in practice. As part of the training, teachers were tasked with creating animated content using both FlipaClip and Steve AI, based on selected prose and poetry from the NCERT Marigold textbook. The sample videos listed in Table 1 reflect the outputs created during these sessions.

All participating teachers successfully created basic animated videos using Steve AI, which required minimal technical expertise due to its AI-driven automation. However, only a portion of the teachers were able to produce complete animations using FlipaClip, which demands greater manual input such as drawing skills, audio synchronization, and frame sequencing. These completed animations serve as informal indicators of developing proficiency.

Despite these outputs, the programme did not include a formal assessment rubric to evaluate the quality or complexity of the animations produced. This absence limits the extent to which actual skill acquisition can be quantitatively verified. To strengthen future training outcomes, it is recommended that post-training evaluations include structured performance tasks, rubrics for animation quality, and reflective feedback to measure teachers' independent capabilities more objectively.

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