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HAWAI PHADDAY: A HUMOUROUS PUNJABI COMIC BOOK EXPLAINING THE CONCEPT OF ATMOSPHERIC PRESSURE

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Abstract

Science can often feel intimidating when it is taught solely through formulas and technical terms, especially for students learning in a language that is not their own. Such traditional methods may help students pass written examinations, but they often fail to foster true understanding or the ability to apply concepts in daily life. This paper proposes an alternative approach a humourous Punjabi comic book designed to explain the concept of atmospheric pressure in a way that feels familiar, fun, and relatable. By blending culturally rooted humour, everyday scenarios, and simple visuals, the comic aims to make science both understandable and enjoyable. (Jay Hosler, 2011)Research indicates that humour helps students relax, stay attentive, and retain information more effectively. Comics, with their combination of storytelling and illustrations, naturally lend themselves to simplifying abstract concepts such as air pressure. This qualitative study investigates the challenges secondary school students face in grasping physics concepts, using data collected through Google Forms questionnaires from 9th and 10th grade students. (Banas, 2018)The findings informed the development of a science-accurate, humour-rich script in Punjabi, written in Roman English for accessibility. Illustrated with lively, relatable characters, the comic is set in a typical desi household to ensure cultural resonance. The expected outcome is that students will not only enjoy the learning process but will also retain the concept of atmospheric pressure long after classroom instruction, shifting from rote memorization to meaningful understanding.

Keywords:*Punjabi,Comics,Atmospheric Pressure,Desi Comics Science Education,Abstract Concepts,Everyday Examples Student Misconceptions.*

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INTRODUCTION

Science teachers everywhere know the look — that blank stare students give when you start talking about invisible forces like atmospheric pressure. In Punjab, this problem is made worse because science is usually taught in English or Urdu, while many students speak Punjabi at home. It's not that students aren't smart; it's that the way science is presented often feels distant from their world and out of touch with the language they think, laugh, and dream in.1 (Dewan, 2025)

Punjabi humour, on the other hand, has a special magic. It's witty, quick, and full of playful exaggerations. People here can turn almost any everyday situation into a joke — whether it's about a stubborn buffalo that refuses to move, a nosy neighbour who knows everyone's business, or a crowded bus where someone inevitably cracks a one-liner that makes the whole ride lighter. This humour isn't just entertainment; it's a cultural language that makes people feel connected and at ease.

If we could wrap scientific concepts inside that humour, they might feel less like "school" and more like a story you'd hear at home2, sitting with family, or laughing with friends. Imagine explaining atmospheric pressure not through equations on a blackboard, but through a comic scene where a mischievous child tries to balance a steel glass of lassi upside down with a card, leaving the family astonished — and then sneaking in the science behind why it works. (Gay, 2018)

This project takes that idea and runs with it: a comic book in Punjabi that makes atmospheric pressure not just understandable, but genuinely entertaining. It aims to bridge the gap between textbook science and lived experience, transforming abstract concepts into funny, memorable stories3. By grounding science in the humour and rhythm of Punjabi culture, we hope to create a resource where students can see themselves, their language, and their everyday lives reflected in what they are learning. In doing so, science becomes less of a distant, difficult subject and more of an accessible adventure — one laugh, one page, and one experiment at a time. (Jay Hosler, 2011)

PROBLEM STATEMENT

According to the data collected in this research To make students understand the concept of atmospheric pressure through comics.

Research Question

How can the concept of atmospheric pressure be incorporated in a comic book through a Punjabi household story and what problems students are facing in understanding the concept of atmospheric pressure?

OBJECTIVE:

The objective of this study was to deeply understand the concept

- *To help students be able to understand the concept of atmospheric pressure by designing a comic.*
- *To promote Pakistani Punjabi Culture.*

SIGNIFICANCE/ RATIONALE:

As mentioned in the title, it will be a humourous Punjabi comic book so this comic book will make this concept easy for students who take it as a burden. And along with that our desi Punjabi culture will also be promoted.

Target Audience

8th-9th Grade Students.

LITERATURE REVIEW

Types of comics

Considering the fact that comic is a popular art form and its audience have continued to grow. The main types comics are enlisted below:-4

Superhero Comics

Slice of Life

Science Fiction & Fantasy

Non- Fiction Comic Books

Manga

Manhua

Humour

Horror

Adult Comics

COMIC BOOK:

A comic book consists of a series of panels arranged from left to right in English and right to left in Urdu and these frames/ panels are commonly known as comics. (Stan Lee, 2nd April 2021.)

Comics is an art form which is used to express ideas or stories with the help of text or images followed by speech and thought bubbles, narration, sound effects etc. (Scott McCloud, 10th April 2021)

This thesis aims to create a comic book explaining the concept of

atmospheric pressure by incorporating a humourous daily life story and also promoting our Pakistani Punjabi culture that will let the students to understand the concepts more clearly rather than cramming. Also, this story will make this topic easy for the students who assume this topic as a difficult one due to the added humour in it, which is the quality of a comic.

ATMOSPHERIC PRESSURE:?

The air around you has weight, and it presses against everything it touches. That pressure is called atmospheric pressure, or air pressure.5 (Britannica, 2025)

COMICS AS A TEACHING TOOL:

Comics have long been underestimated as "light reading," but in education, they offer unique advantages that traditional text-heavy resources often lack. At their core, comics combine two powerful modes of communication: visuals and narratives. This dual coding makes them especially effective for teaching science, where abstract or invisible concepts can be difficult to imagine.

Research shows that visuals help reduce cognitive load by breaking down complex information into smaller, more digestible parts. For example, when a student sees a comic panel showing air molecules pushing against a balloon, the image immediately conveys what several sentences of text would struggle to explain. The storyline then provides context, showing not just what is happening but also why it matters. This narrative structure helps learners build mental connections and retain knowledge more effectively.

Hosler and Boomer (2011) demonstrated that comics can transform intimidating science topics into approachable stories, motivating even reluctant learners to engage with the material. Unlike textbooks, which often present science as static facts, comics use humour, dialogue, and character interactions to make the subject dynamic. Students are more likely to connect with a curious comic character who asks "silly" questions than with a dry definition in a classroom handout.6 (Pange, 16 dec 2022)

Another key strength of comics lies in their ability to bridge abstract and real-world contexts. When concepts like atmospheric pressure are explained through everyday situations — such as a chips packet bursting in the mountains or the lid of a pressure cooker rattling in a kitchen — the science becomes both memorable and relatable. Comics can exaggerate these

everyday scenarios for humour without compromising accuracy, further reinforcing engagement.

On one side, there are difficult, abstract ideas; on the other side, there are learners who may feel disconnected from those ideas. Comics connect the two by making science look less scary and more like a story. They grab attention with funny characters and pictures, explain ideas step by step, and link them to situations from daily life. Instead of feeling like "hard schoolwork," science in comic form feels more like reading a fun story that just happens to teach something important.

HUMOUR & LEARNING:

Humour doesn't just make people laugh—it makes them listen. Banas et al. (2011) observed that humour isn't merely a source of amusement; it actually reduces stress and helps students retain lessons more effectively.

In the context of science education, a well-placed joke or witty remark can transform a dense concept into something memorable. As Lujan and DiCarlo (2016) highlight in Advances in Physiology Education, humour engages students, fosters deeper thinking, and acts as a joyful bridge between educators and learners.7 (DiCarlo, 2016)

Data from classroom experiments supports this: Wanzer et al. (2010) found that students in classes where humour was intentionally used scored 12–15% higher on retention tests compared to control groups. Importantly, humour must be relevant — random jokes can distract, but humour tied to the subject matter strengthens understanding. For Punjabi learners, humour rooted in everyday experiences (like family life, farming, or village kitchens) ensures both relevance and relatability.

Together, these findings suggest that incorporating humour thoughtfully in scientific teaching not only lightens the mood but also makes complex ideas stick.

PUNJABI LANGUAGE?

Punjabi language, one of the most widely spoken Indo-Aryan languages8. The old British spelling "Punjabi" remains in more common general usage than the academically precise "Panjabi." In the early 21st century there were about 30 million speakers of Punjabi in India. (Punjabi Language, 2025)

It is the official language of the Indian state of Punjab and is one of the languages recognized by the Indian constitution. In Pakistan Punjabi is

spoken by some 70 million speakers, mostly in Punjab province, but official status at both the national and the provincial level is reserved for Urdu. There are also important overseas communities of Punjabi speakers, particularly in Canada and the United Kingdom—where in the early 21st century they respectively constituted the third and fourth largest linguistic groups in the national populations—as well as in several parts of the United States.

THE POWER OF LOCAL LANGUAGE:

Language is not just a medium of instruction; it is a carrier of culture, values, and identity. Research shows that students taught in their mother tongue demonstrate stronger conceptual understanding, particularly in early and middle education (UNESCO, 2016). In Punjab, where many children grow up speaking Punjabi at home but are taught science in Urdu or English, a disconnect occurs. This disconnect often leads to rote memorization rather than true comprehension.9 (Pennycook, 2010)

For example, a student may memorize that "atmospheric pressure is 101.3 kPa at sea level" without grasping what it feels like or how it matters in daily life. But if the same idea is explained in Punjabi through a story about why "lassi foam fluffs differently in the hills than in the plains," the abstract number suddenly has a human face.

Research in culturally responsive teaching (Gay, 2018) shows that students learn best when lessons reflect their language, traditions, and everyday life. For Punjabi-speaking students, hearing science in their own tongue brings it closer to home—it transforms abstract ideas into something familiar. Alastair Pennycook takes this further: he argues that language isn't just a system or code we use—it emerges from the activities happening in our everyday spaces and practices. In other words, when students encounter scientific concepts in Punjabi, not only does the material become accessible, but the very way they process knowledge becomes socially grounded—language in their lives.

Pennycook's perspective reminds us that language is deeply tied to where and how we use it—it's something we do, not just something we know. So, framing science lessons in Punjabi doesn't just translate content—it invites students to engage with science as part of their lived world. The language and the place come together: the classroom, the local culture, the

shared experience of speaking and thinking in Punjabi. When lessons unfold in this way, they become part of a practice—rooted in students' identities, daily routines, and social spaces—and that's what makes learning stick.

By framing science in Punjabi, this project not only strengthens learning outcomes but also affirms the cultural identity of learners, showing them that science does not belong only to foreign languages — it belongs to them too.

WHY ATMOSPHERIC PRESSURE IS TRICKY:

Atmospheric pressure is one of those invisible forces that makes perfect sense to scientists but often feels abstract to students. Because it cannot be seen or touched directly, learners tend to associate it only with obvious phenomena like "weather" or "wind." This narrow view hides the fact that pressure is constantly acting on us and shaping our everyday experiences. For many students, the challenge lies in grasping that something invisible can still have very real and measurable effects.

This difficulty is compounded by the way science is usually presented in classrooms—through formulas, graphs, and definitions that remain disconnected from lived reality. Without concrete connections, students may memorize the term "atmospheric pressure" without really understanding it. For instance, they might not connect the concept to why a packet of chips looks inflated on a mountain trip or why liquid rises in a straw when we sip. These simple, everyday examples illustrate pressure in action, yet they are rarely emphasized in traditional teaching.

Bringing such examples into lessons not only grounds atmospheric pressure in familiar experiences but also makes it easier for students to build mental models of an otherwise invisible force. When science education highlights these practical, relatable situations, abstract ideas stop feeling like distant textbook concepts and start to feel like part of daily life. In this way, teaching strategies that blend theory with lived examples can transform the "tricky" nature of atmospheric pressure into a concept students can see, feel, and understand.

2.1 INDIAN PUNJABI COMICS

During the research of this thesis, I did find Punjabi comics but they belong to India and so the language used in its script was Hindi. And the culture portrayed in that was either Sikh or Hindu and this thing is far different from my thesis.

2.2 PAKISTANI ARTISTS UMAIR NAJEEB KHAN

He is Islamabad based illustrator and comic book artist became famous after his version of Pakistani superheroes went viral. He is basically into making illustrated books for children, character designing etc. In his illustration's normal Pakistani culture, behavior is depicted as shown in his recent illustrations on Ramadan and Eid. (See Appendix A) (The Express Tribune, 2020)

2.2.2 MOINAZIM GRAPHICS

He is a graphic Designer, Illustrator and a comic artist. He says: -

"Every day is another chance to learn and be inspired."

(The Express Tribune, 2020)

This is also seen in his work in a way as if an object is talking to person and vice versa. And this seems so amazing. Also, normal Pakistani culture is seen in his work. (See Appendix A)

2.2.3 SAMAD RIZVI

Samad Rizvi is known for his work in story boards, films and games. He is a Karachi based artist. Most inspiring qualities I found in his work was that he has shown normal Pakistani characters as superheroes10. (See Appendix B) (13 Pakistani Illustrators Who Deserve The Spotlight, 2024)

2.3 Relation and differentiation with my thesis

I mentioned these artists because they were my inspiration behind this project and my work are related and different from them because in my story; -

1. The characters are also desi but the story has some scientific concepts in it. 2. The script is humourous but it is explaining the concept of atmospheric pressure in a desi way so that the audience will not get bored of the subject.

3. The language used in my script is Punjabi so it is different from their art works.

METHODOLOGY

3.1 Pre- Production

3.1.1 Research

3.1.1.1 Finding a right Topic

The reason for selecting this topic is that in today's world where grades are given more importance than concept building. Students nowadays don't pay much attention to the practical work but only to the block text. Also, in

today's education system students like to cram the subject rather than having An understanding about them and applying it in their daily life.

For this reason, I took a topic from physics i.e., Atmospheric pressure. And kept the language of script as Punjabi. So that they could understand the concept in a better way. For gathering the information about the concept, I consulted course books of matric class along with consulting the websites and YouTube videos. Which stated that:

"The pressure exerted by the weight of the atmosphere, which at sea level has a mean value of 101,325 pascals (roughly 14.6959 pounds per square inch)." (atmospheric pressure, n.d.)

3.1.2 STORY & SCRIPT WRITING

Story writing is a type of commentary in written form where there is a main character around which the story revolves and script writing is a detailed description of the dialogues, action, expressions, camera movements, background music

3.1.3 LANGUAGE

Language of Comic book is Punjabi.

3.1.4 PILOT STUDY

For the approval of my story in the sense of having no technical fault I consulted physicists. Arranged meetings with them, discussed my story with them and finally got approved. Meetings were arranged according to the following schedule: -

- *Mr. Muhammad Ejaz (5th June,2021)*
- *Mr. Malik Abid (7th June,2021)*
- *Mr. Muhammad Tahir Abbas (11 June,2021)*

3.2 PRODUCTION

3.2.1 Working

3.2.1.1 Character Designs

- *First of all, different types of character variations were made and then got approved after making initial sketches.*

3.2.1.2 Storyboarding & Environment Design

- *Then a rough storyboard was made according to saddle stitched format after setting a proper surrounding of the characters.*

3.2.1.3 Software Used

- *Storyboard was made using painting and photo editing software i.e., Photoshop CC 2020. Similarly, the final panels were painted using the same*

software.

3.2.1.4 Color Palette

I have selected the color palette of Retro Futuristic Design Trend 2021 as the color palette of my comic book. It has bold colors and gives a sci-fi look to your illustrations. (11 inspiring graphic design trends for 2021, 2021)

3.2.1.5 Medium

Medium of expression of my thesis is a Comic Book.

3.3 POST PRODUCTION

This was the one man show phase where all of the illustrations were combined and were pasted on proper mockup for book.

3.4 LIMITATIONS

Limitations in this project were: -

- *As physics is a very vast subject and it was not possible to cover each and every thing in my thesis so I chose one of the topics from it.*
- *Due to covid conditions we had to submit the final book in soft form and so for that purpose I chose to finally compile the pages of my comic book on a mockup.*

EXPECTED OUTCOME

4.1 THEME & PANELING

The theme of my comic book is science fiction and the panels of my comic book are made according to the saddle -stitched format where there is a full-page splash and there are further insets in it in order to show the details.

4.1.1 PRESSURE COOKER

This is an action to action shot of the Inside of the cooker. A mixture of vegetables, spices, meat and water is visible. Some of them are half dip in the water and some of them are settled at the bottom of the mixture. And agents of Mr. Mast Mastani are jumping and putting pressure on the water by jumping to make it edible. See Appendix C

Camera movement: Zoom Shot

Camera Angle: Hip level Shot

Camera Shot: Full Shot (FS)

Camera Framing: Three Shot

Camera Focus: Deep Focus

Dialogue:

Mr. Mast Mastani: nacho sarayy nacho….tayein khana sai paksii

Sfx:

1. BLUPP

2. PLANK

4.1.2 VACCUM CLEANER

This is a double page-spread where a large number of members of Miss. Mast Mastani are present on the outside of the vacuum cleaner while less number is present on the inside i.e., machinery inside. Team Miss. Mast Mastani is standing in a group. And the view of Vacuum cleaner is transparent. (See Appendix D)

Camera movement: Static Shot

Camera angle: Ground level

Camera shot: Full Shot

Camera Framing: Three Shot

Camera Focus: Deep Focus

Dialogue: ---

Sfx: -----

4.1.3 UPSIDE DOWN GLASS EXPERIMENT

This is also a double page spread where paper plane is flying in the air. Mr. Mast Mastaani along with his agents is giving an upward lift from the bottom of the paper plane. (See Appendix E)

Camera movement: Static Shot

Camera angle: Low level

Camera shot: Closeup Shot (CU)

Camera Framing: Single Shot

Camera Focus: Shallow Focus

Dialogue:

Mr. Mast Mastani: Hun saadiyan udariyan wekho jee...

Sfx: ARRRGHHH,WHIZZZZZZZ

4.1.4 AIRPLANE FLIGHT

This is a subject to subject shot where Inside of glass. Mr. Mast Mastani along with his friends is present between the gap of the water and lower end of glass. And struggling to put pressure on the card by standing under it and applying pressure head on and two of them are flying and holding the two ends of the card while the one on the inside is holding water as if she is holding a piece of cloth. (See Appendix F)

Camera movement: Static Shot
Camera angle: low level
Camera shot: Full Shot (FS)
Camera Framing: Three Shot
Camera Focus: Deep Focus
Dialogue:
Mr. Mast Mastani:
1. Hathaan naal sai bojh pao na….paanri weetna ni chaida.
Sfx: ARGHHHHHHH

CONCLUSION

When science speaks the language of the students — literally and culturally — it becomes less of a subject and more of a story. A humourous Punjabi comic about atmospheric pressure can turn blank stares into curious smiles. If it works, this approach could be applied to many other science topics, creating a whole library of "laugh-and-learn" comics.

More importantly, learning with understanding means students are not just memorizing facts but becoming more flexible in how they apply knowledge. This is the central aim of this thesis. By engaging with a humourous story in their own language, students will not only grasp the scientific idea of atmospheric pressure but also learn how it connects to their daily lives. For example, they can understand why a pressure cooker lid rattles, why chips packets burst at higher altitudes, or how a simple straw works — knowledge that empowers them to use everyday kitchen tools more effectively and safely.

At the same time, the project carries a cultural mission. It promotes Punjabi language and humour as valid, powerful mediums for teaching science, challenging the assumption that science must always be delivered in English or Urdu. By embedding science in the rhythms, jokes, and expressions of Punjabi culture, this thesis demonstrates how education can both preserve cultural identity and open new intellectual doors.

In short, this project is not only about teaching atmospheric pressure; it is about showing how science can become part of everyday storytelling, where laughter and learning go hand in hand.

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