

## The *Simpsons* in Higher Education

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### Abstract

*Popular culture if effectively applied can be a powerful aid to learning, increasing student engagement, understanding and enjoyment. The use of popular culture in Higher Education is under explored, using the animated US TV show The Simpsons as a case study the benefits and limitations of this medium are discussed. The Simpsons has been used in a range of Higher Education settings from the humanities to the sciences for contextualising theories and concepts. The Simpsons use is examined in a range of subjects and new uses are presented, both illustrate the shows value in enhancing the learning and teaching experience.*

**Key words:** Simpsons, Higher Education, Popular Culture, Student Engagement

## Introduction

Popular culture is a powerful and influential medium, particular on the generation of individuals in compulsory and elective education. This paper explores the potential of using popular culture as a tool to enhance the teaching and learning of students, specifically in higher education. The role of popular culture in education is studied in detail through examining the use of the TV sitcom *The Simpsons*. A series of case studies showing the use of *The Simpsons* in a range of teaching contexts and subject are evaluated alongside its application in a new context (science). A full evaluation of the benefits and pitfalls of using *The Simpsons* in the classroom will allow educators to make informed judgements on integrating the show into their lessons.

## Popular culture as a vehicle for education

Alongside television shows such as *The Simpsons*, examples of various other aspects of popular culture including books, magazines, music and films have in recent years been utilised as vehicles for education (Hobbs, 1998; Scanlan and Feinberg, 2000). Strong evidence supports positive contributions to student learning offered by popular culture derived teaching tools, including improvements in student engagement, motivation to learn, classroom discussion, development of essential study skills (e.g. literacy and critical thinking) and general attitudes towards educational subjects (Hobbs, 1998; Scanlan and Feinberg, 2000; Perales-Palacios and Vilchez-González, 2005).

Teaching methods that incorporate fun aspects of popular culture are considered to provide more stimulating experiences for students in comparison to more traditionally theoretical listen-and-learn teaching styles alone (Berk, 2009; Yaman, 2010). This has been attributed to prior student interest in popular culture, alongside its' inherent ability to entertain audiences through senses of sight and sound (Berk, 2009; Yaman, 2010). It is considered that more pleasurable learning environments attained by classroom use of popular media may directly improve students' capacity to focus on, learn and retain taught information (Eaton and Uskal, 2004; Berk, 2009). A lightened class mood (Eaton and Uskal, 2004) and focus on common interests may also facilitate and fuel relevant group discussions (Hall and Lucal, 1999; Kristiansen, 2001; Eaton and Uskal, 2004; Woodcock, 2006; Fink and Foote, 2007), hence driving deeper consideration of educational topics.

Classroom references to popular culture often provide familiar hooks, harnessing an expanse of prior student knowledge (Fink and Foote, 2007; Eikmeier, 2008) to lay both a comprehensible and memorable grounding upon which to anchor introductions of novel educational content (Hall, 2005; Eikmeier, 2008; Remlinger, 2012). This approach can act as a gentle ice-breaker, easing students into reputedly difficult or un-engaging areas of curricula to help counteract any prior student aversion to a subject (Perales-Palacios and

Vílchez-González, 2005; Woodcock, 2006; Luccasen and Thomas, 2010), whilst reducing initial learning anxiety and instilling confidence through familiarity (Fink and Foote, 2007; Şengül and Dereli, 2010). As a stellar example of modern popular culture, having received mass global audiences during its two and a half decades of production (Fink and Foote, 2007; Waltonen and Du Vernay, 2010) – *The Simpsons* is a prime example of a show capable of delivering familiarity to the classroom (Hobbs, 1998; Eikmeier, 2008). Often students are even familiar enough with *The Simpsons* characters and premise that descriptions of clips alone without classroom viewing can prove capable of entertaining whilst successfully introducing educational concepts (Hall, 2005).

### **The *Simpsons* in modern day culture**

'*The Simpsons*' is an award winning U.S. animated sitcom, which currently in its third decade of production continues to captivate television audiences across the globe. The show is set in the fictional U.S. town of Springfield, a community dominated by a nuclear power plant and monopolised by owner Montgomery Burns (Hall, 2005). The show provides a humorously exaggerated reflection of 'real-world' Western culture, specifically that of the U.S. (Scanlan and Feinberg, 2000; Kristiansen, 2001; Gouthier, 2007). The main focus of the show is the Simpson family; simpleminded Homer, his matriarchal wife Marge, unruly son Bart, intellectual daughter Lisa and baby Maggie.

The *Simpsons* originated in 1987, initially appearing as a regular short feature on 'The Tracy Ullman Show' (Waltonen and Du Vernay, 2010). Since 1987 over 550 full-length episodes have been produced across 25 seasons, these being broadcasted in over 70 countries and winning 27 Emmy awards (Gouthier, 2007; Groening, 2013). *The Simpsons* is America's longest running sitcom (Fink and Foote, 2007) and animated prime-time television show (Scanlan and Feinberg, 2000; Waltonen and Du Vernay, 2010; Groening, 2013). It is also crowned as the 20<sup>th</sup> century's best television show by Time Magazine (Waltonen and Du Vernay, 2010). The Popularity of *The Simpsons* has even led to a feature length movie and numerous computer games, books, comics, merchandise and websites (Gouthier, 2007; Waltonen and Du Vernay, 2010).

The popularity of *The Simpsons* has largely been credited to its ability to amusingly intertwine current 'real-world' issues with fictional storylines, allowing it to move with the times whilst remaining relevant and accessible to a wide audience demographic (Scanlan and Feinberg, 2000; Kristiansen, 2001; Fink and Foote, 2007). The show's popularity is further enhanced by an extensive bank of regular characters, the diversity and eccentricities of whom provide a wealth of attributes with which audiences may relate. Expert use of humour by *The Simpsons*' writers has also been considered a major factor in success of the show; satire, parody, irony and stereotyping all having been effectively implemented in the show's conception (Kristiansen, 2001; Gray, 2005; Fink and Foote, 2007).

### **The *Simpsons* as a teaching tool in formal education**

An extensive back catalogue of episodes and ongoing production of *The Simpsons* continue to provide a highly expansive breadth of covered topics, making the show particularly applicable for use as a teaching aid (Luccasen and Thomas, 2010). The use of whole episodes and isolated clips of *The Simpsons* as teaching tools has been formally reported in a wide range of higher educational settings from the humanities to science based subjects (Scanlan and Feinberg, 2000; Luccasen and Thomas, 2010).

Implementation of *The Simpsons* as a teaching tool in higher educational English classes has been reported by both Hobbs (1998) and Fink and Foote (2007); they make use of the broad range of themes (e.g. stereotypes, satire and hypocrisy) which feature in the show and are also identifiable in set course literature. Fink and Foote (2007) consider bridges between English literature and *The Simpsons* to be valuable aids in developing students' analytical skills and providers of much needed context for understanding literary themes (Waltonen and Du Vernay, 2010). Hobbs (1998) extends this idea, describing *The Simpsons* as a preliminary focus for in-class skill-building activities, such as an analysis of how *The Simpsons'* characters are first introduced to viewers. Such exercises reportedly nurture students' skills whilst priming for repetition of the activity, this time with focus on unfamiliar classical literature (Hobbs, 1998). This empowers students by showing that if they can utilise skills effectively towards familiar popular culture then they can in turn do so more confidently with unfamiliar literature (Hobbs, 1998).

Universal global appeal of *The Simpsons* has also enabled the show to be used as a tool for teaching English as a foreign language. Arikan and Taraf (2010) report use of *The Simpsons* in Turkish schools, where students' prior familiarity with the show provides a hook for engagement in the study of English vocabulary. In this case, *The Simpsons* improved English vocabulary and grammar skills by providing a visual contextualisation of oral language. These improvements are evidenced by results of pre- and post-implementation tests for classes taught using *The Simpsons* compared with those taught more traditionally (Arikan and Taraf, 2010). In Norway, *The Simpsons* has also been used to assist secondary school English language learning; here Kristiansen (2001) reports benefit of student exposure to voices of the show's many actors, these presenting a range of authentic English speakers as opposed to the teacher alone. *The Simpsons* has additionally been claimed as a fitting illustrator of American culture, an awareness of which is highly valuable for effective use of English as a foreign language (Kristiansen, 2001; Rucynski Jr., 2011).

Economics classes have too featured *The Simpsons*, utilising appropriate storylines as succinct applied examples for illustration of various economic concepts. Hall (2005) for example demonstrates economic terms including 'monopolies' and 'trade-offs' by referring to relevant issues surrounding the Springfield Nuclear Power Plant. Luccasen and Thomas

(2010) emulate this use of *The Simpsons* in the traditionally lecture-intensive subject of economics, highlighting further storylines which illustrate economic concepts including 'game theory' and presenting a reference table of useful episodes for teaching specific economic principles. Luccasen and Thomas (2010) also provide an example student worksheet, demonstrating a suitable method for incorporating *The Simpsons* into economics classes. Similarly, Bylund *et al.* (2010) effectively communicate various defining aspects of 'entrepreneurialism' using memorably amusing descriptions of *The Simpsons*' most fitting characters and storylines. These are presented in combination with 'real-world' examples involving iconic non-fictional companies (e.g. Microsoft and Apple) to enhance learners' understanding (Bylund *et al.*, 2010).

In undergraduate sociology classes, clips of *The Simpsons* have been employed by both Nefes (2014) and Scanlan and Feinberg (2000) to contextualise taught concepts by making use of the show's satirical portrayal of American society. Select clips form the basis of group discussions and written exercises which facilitate application of sociological thinking to a reflection of the 'real-world'. Scanlan and Feinberg (2000) report successful practice of two *Simpsons*-based classroom activities, the first aiding understanding via student identification of sociological concepts in clips, the second enabling students to form sociologically reasoned predictions of storyline development by viewing part episodes (Scanlan and Feinberg, 2000). Students themselves are reported to have enjoyed participating in both activities, recognising self-improvements in ability to consider situations sociologically (Scanlan and Feinberg, 2000). Scanlan and Feinberg (2000) also present a reference table linking specific episodes to sociological topics such as 'social class' and 'ethnicity'. Hare *et al.* (2006) has since added to this by detailing further episodes of sociological relevance, with focus specifically on the relationship between work and family life.

One humanities course has even been centred entirely upon *The Simpsons*, focusing on the show's portrayal of themes including 'identity' and 'high art'; this both develops and tests students' abilities by studying episodes of *The Simpsons* itself alongside books which analyse the show (Fink and Foote, 2007). Fink and Foote (2007) claim this course to be beneficial in stimulating work completion and class discussion and credit these benefits heavily to student's prior familiarity and interest in the show.

In teaching undergraduate politics, Woodcock (2006) analyses the political system and democratic nature of *The Simpsons*' complexly developed community of Springfield, citing specific episodes as evidence of this. Woodcock (2006) notes the utility of Springfield as a scarce example of a democratic political system already familiar to many students. As students are generally only previously familiar with their local political system in the 'real-world', *The Simpsons* thereby greatly increases the quantity of material available for illustrating and contextualising political theory (Woodcock, 2006).

Finally, Gray (2005) has recognised the power of *The Simpsons* as an informal source of media literacy training, finding the show's satirical reflection of the 'real-world' advertising

industry capable of stimulating media criticism among students, hence complementing formal media education (Gray, 2005). Whilst in an undergraduate tourism class, *The Simpsons* has again been used visually to demonstrate and contextualise an otherwise heavily theoretical curriculum (Edelheim, 2009).

### **The *Simpsons* in science classes**

Despite wide use of *The Simpsons* as a classroom teaching tool, relatively few examples of use in science teaching have been reported. Perales-Palacios and Vilchez-González (2005) do provide one such example, reporting implementation of cartoons including *The Simpsons* to secondary school physics lessons in a much needed attempt to raise favourability of the subject among students. Within these classes, students were directed to view clips of *The Simpsons* in observation of any physics-related occurrences and link any identified instances with physics theory as found in the course literature (Perales-Palacios and Vilchez-González, 2005). In a subsequent activity students were directed to identify unrealistic physics-related occurrences in clips of *The Simpsons* (e.g. events appearing to defy Newton's Laws), hence facilitating student discussions of whether and why such instances are realistically impossible according to physics (Perales-Palacios and Vilchez-González, 2005). This also enabled students to design and implement a means of testing the conformity to physics theory of occurrences identified in *The Simpsons*, whilst aiding teachers in assessing student abilities (Perales-Palacios and Vilchez-González, 2005). Pre- and post-implementation tests suggested these activities to be beneficial in engaging and entertaining students, enhancing physics-related discussion skills and extending subject knowledge, whilst providing practice in research planning, use of physics formulae and application of scientific thinking to everyday media (Perales-Palacios and Vilchez-González, 2005).

Eaton and Uskal (2004) have also reported showing *The Simpsons* to undergraduate psychology classes as a pleasantly amusing method of contextualising taught concepts. Upon viewing *The Simpsons* students were encouraged to identify psychology present in select storylines, thereby introducing these concepts whilst engaging students in application of psychological thinking to a reflection of the 'real-world' (Eaton and Uskal, 2004). Periodic use of *The Simpsons* throughout this course was found successful in stimulating classroom discussion, whilst exam results tentatively suggested firmer student grasping of psychological topics taught using *The Simpsons* compared with those taught otherwise (Eaton and Uskal, 2004). Students also self-identified benefits regarding enjoyment, understanding and improvements to psychological thinking skills (Eaton and Uskal, 2004). Beyond limited previous reports, much scope remains for use of *The Simpsons* as a teaching tool in science classrooms. *The Simpsons* is particularly well suited for teaching of the sciences given the scientific backgrounds of several of its writers including Al Jean and David S. Cohen, whom prior to production of the show attained Harvard degrees in Mathematics (Jean, 2007) and Physics (Halpern, 2007) respectively. The show's scripts are resultantly

influenced by scientific perspective (Gouthier, 2007), carrying a subtle undercurrent of scientific references and interest. An example of this as described by Singh (2013) is the passage of Homer Simpson from a two to a three dimensional world in the episode '*Treehouse of Horror VI*', providing insight into scientists' conceptualisation of a fourth dimension in the 'real-world', whilst also featuring hidden messages encoded in mathematical language (Singh, 2013). A wealth of more overt scientifically centred plotlines are also present concerning topics including environmental threats, solar energy and evolution, these stories often portrayed via Lisa Simpson. Additionally, many opportunities remain for linkage of *The Simpsons* storylines with examples of comparable 'real-world' scientific research, enabling students to critique the science of the show and extract fact from fiction (Halpern, 2007).

In response to this, books including '*The Simpsons in the Classroom: Embiggening the Learning Experience with the Wisdom of Springfield*' by Waltonen and Du Vernay (2010) and '*What's Science Ever Done for Us? What the Simpsons Can Teach Us about Physics, Robots, Life and the Universe*' by Halpern (2007) have begun to provide guidance for teachers on implementing *The Simpsons* as a teaching tool in secondary and undergraduate level classes (Remlinger, 2012). An example of this is Halpern's (2007) elegant linkage of research critiquing authenticity of the 'real-world' existence of three-eyed fishes (Gudger, 1928) with related *Simpsons* episode '*Two Cars in Every Garage and Three Eyes on Every Fish*', which portrays apparent genetic mutation of Springfield's fishes by nuclear contamination of waterways (Halpern, 2007). Purposely designed websites have similarly begun to highlight links between science and *The Simpsons*, listing clips of relevance to specific scientific topics (Los Gatos High School, 2013).

Continued research efforts are however imperative in identifying further specific links between *The Simpsons* and individual science topics (Perales-Palacios and Vilchez-González, 2005), these being valuable in promoting further realisation of the show's evident potential as a teaching tool in science classes. In view of this the authors have produced their own reference table (see table one) highlighting clips which may be used to illustrate specific scientific concepts, such as 'velocity' and 'evolution'. The principles are not all overtly part of the episode storyline or dialogue, but serve as an illustration of the way in which even subtly referenced principles and theories can be used to promote student engagement with scientific subject matter. In addition to presenting a ready source of relevant clips, this resource also therefore provides an inspirational basis upon which individual teachers may themselves forge further connections between the show and curricula (Hall and Lucal, 1999; Scanlan and Feinberg, 2000; Remlinger, 2012), for which general *Simpsons*-related websites detailing contents of all archived episodes (e.g. <http://thesimpsons.com>) may be of added assistance.

## Popular culture and the *Simpsons*

Popular cultural references such as video clips of *The Simpsons* provide an ideal means of illustrating taught concepts. Clips both present imagery to demonstrate practical workings of theory (Scanlan and Feinberg, 2000; Eaton and Uskal, 2004; Luccasen and Thomas, 2010) and place taught concepts into a context mirroring the 'real-world' (Hall and Lucal, 1999; Eaton and Uskal, 2004; Edelheim, 2009). Two-fold educational benefits are derived from contextualising theory in this manner. Initially this enhances otherwise abstract classroom teachings by grounding in familiarity, thus improving understanding and memorability (Eaton and Uskal, 2004; Woodcock, 2006; Eikmeier, 2008) by utilising vast quantities of time which many students have already invested in such media (Duncan-Andrade, 2004; Perales-Palacios and Vílchez-González, 2005; Fink and Foote, 2007). Contextualisation of theory then aids in demonstrating 'real-world' relevance and out-of-classroom commonality of taught concepts, so arming students with critical thinking skills required to identify further links between curricula and their own out-of-class environment (Hobbs, 1998; Scanlan and Feinberg, 2000; Perales-Palacios and Vílchez-González, 2005; Eikmeier, 2008). This therefore promotes informal learning from further investments in popular culture, a result self-identified by students having previously undergone such teaching techniques (Hobbs, 1998; Scanlan and Feinberg, 2000).

Additionally, fictional animations such as *The Simpsons* may be of particular assistance in classroom illustration of problematic subject content, whereby factual 'real-world' illustrations may be less appropriate due to unsavoury nature, or less readily available due to information protection (Fink and Foote, 2007; Meskill, 2007). Similarly even outside of the classroom, analogies to *The Simpsons* as fictional alternatives to personal 'real-world' examples have provided leverage needed to present powerful points on issues such as the U.S. healthcare system (Patterson and Weijer, 1998; Waltonen and Du Vernay, 2010), in a strikingly entertaining manner.

Concerns have been raised about appropriateness of combining formal education with elements of popular culture such as *The Simpsons*. These include consideration of whether entertainment value and irrelevant themes present within selected media may distract students, thereby detracting attention from educational content (Fink and Foote, 2007; Rucynski Jr., 2011). It has too been suggested that students may take popular media overly seriously when presented within an educational setting, by habit consuming all content as fact, including any fantastical events or scientific inaccuracies (Orthia *et. al.*, 2012). Evidence has also suggested that student responses to popular media are diverse with regards to identifying and understanding educational links (Orthia *et. al.*, 2012). This is particularly so in multi-cultural classes where it is more probable that students will differ in their familiarity with and ability to relate to select elements of popular culture (Rucynski Jr., 2011).

It can however be argued that issues of concern may be minimised by careful selection of effective popular media for presentation (Berk, 2009) and by accompaniment of this with sufficient explanation of the educational links by teachers (Hall, 2005; Rucynski Jr., 2011). Class discussions may also be used to reveal differences in student responses and enable sharing of these. Assuming that these guidelines are adhered to and that copyright legalities in classroom use of popular media are fully respected (Bruwelheide, 1995; Scanlan and Feinberg, 2000), popular media such as *The Simpsons* can as demonstrated here be a highly valuable vehicle for education. Although not viewed as a replacement, popular culture is capable of aiding and enhancing more traditional teaching methodologies across various subject curricula (Kristiansen, 2001; Gray, 2005; Fink and Foote, 2007), presenting a novel means of engaging students through familiarisation, illustration and contextualisation of teachings (Eaton and Uskal, 2004; Hall, 2005; Luccasen and Thomas, 2010).

Benefits offered by popular culture as a vehicle for education hold particularly high value in a generation where vital subjects such as the core sciences are lagging in popularity and uptake throughout the education system (Perales-Palacios and Vilchez-González, 2005; Hampden-Thompson and Bennett, 2013). As such, research continues to be required into how best to link popular media such as *The Simpsons* with curricular content and how to effectively implement this in classrooms and lecture theatres, thus providing teachers with the inspiration and confidence to do so with maximal effect (Greenwald and Nestler, 2004).

## Conclusion

*The Simpsons'* prolonged and widespread popularity (Gouthier, 2007; Waltonen and Du Vernay, 2010), satirical portrayal of 'real-life' culture (Scanlan and Feinberg, 2000; Kristiansen, 2001; Gouthier, 2007) and extensive back catalogue of episodes (Gouthier, 2007; Groening, 2013) all contribute to it being an exemplary piece of popular culture for aiding classroom teachings. Having been implemented in the teaching of subjects including English (Hobbs, 1998; Fink and Foote, 2007), Economics (Hall, 2005; Bylund *et al.*, 2010; Luccasen and Thomas, 2010), Physics (Perales-Palacios and Vilchez-González, 2005) and Psychology (Eaton and Uskal, 2004), evidence has shown *The Simpsons* to be effective at aiding students' understanding and engagement with higher educational content (Eaton and Uskal, 2004; Waltonen and Du Vernay, 2010). The reference table here provided here contributes to a growing body of research exploring novel and effective means of utilising the show in an educational context (Waltonen and Du Vernay, 2010), with scope remaining for continuation of such study.

The field of popular culture is however vast, *The Simpsons* being only an isolated example of this and thereby posing as an exemplary flagship for the great potential that other diverse elements of popular culture similarly hold as teaching tools. Many examples of wider popular media including TV shows, books, films and music, may too share in *The Simpsons'* valuable wealth of educational capabilities, such as improving discussion skills (Eaton and Uskal,

2004; Perales-Palacios and Vilchez-González, 2005; Fink and Foote, 2007), illustrating and contextualising curricula content (Scanlan and Feinberg, 2000; Eaton and Uskal, 2004; Woodcock, 2006; Edelheim, 2009; Arian and Taraf, 2010; Waltonen and Du Vernay, 2010; Nefes, 2012), hooking, inspiring and engaging students (Perales-Palacios and Vilchez-González, 2005; Arian and Taraf, 2010). Hence whilst *The Simpsons* is the focus of current research, such studies should be considered as an inspirational basis upon which innovative providers of higher, further, secondary and primary education may all be empowered to utilise broader popular cultural references. In doing so, it is thus possible for individual teachers to opportunistically exploit advantages such as the topical nature, current relevance and localised popularity of selected popular media, for optimal enhancement of their own specific teachings.

## References

- Arikan, A. & Taraf, H.U. (2010) Contextualizing young learners' English lessons with cartoons: Focus on grammar and vocabulary, *Procedia Social and Behavioural Sciences*, 2, 5212-5215.
- Berk, R.A. (2009) Multimedia teaching with video clips: TV, movies, YouTube, and mtvU in the college classroom, *International Journal of Technology in Teaching and Learning*, 5, 1-21.
- Bruwelheide, J.H. (1995) *The Copyright Primer for Librarians and Educators* (2<sup>nd</sup> ed). Chicago, IL: American Library Association.
- Bylund, P.L., Holbrook, C.M. & Klein, P.G. (2010) "They have the internet on computers now?" Entrepreneurship and economics in *The Simpsons*, *Social Science Research Network* [Online]. Retrieved from [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1711252](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1711252).
- Duncan-Andrade, J.M.R. (2004) Your best friend or your worst enemy: Youth popular culture, pedagogy, and curriculum in urban classrooms, *The Review of Education, Pedagogy, and Cultural Studies*, 26, 313-337.
- Eaton, J. & Uskal, A.K. (2004) Using *The Simpsons* to teach social psychology, *Teaching of Psychology*, 31, 277-278.
- Edelheim, J.R. (2009) With *The Simpsons* as tour guides: How popular culture sources can enhance the student experience in a university tourism unit, *Journal of Hospitality and Tourism Management*, 16, 113-119.
- Eikmeier, G.M. (2008) D'oh! Using "The Simpsons" to improve student response to literature, *The English Journal*, 97, 77-80.
- Fink, M.A. & Foote, D.C. (2007) Using *The Simpsons* to teach humanities with gen X and gen Y adult students, *New Directions for Adult and Continuing Education*, 115, 45-54.
- Gouthier, D. (2007) It's science after all, Homer!, *Journal of Science Communication*, 6, 1-2.
- Gray, J. (2005) Television teaching, Parody, The Simpsons, and media literacy education, *Critical Studies in Media Communication*, 22, 223-238.
- Greenwald, S.J. & Nestler, A. (2004) Using popular culture in the mathematics and mathematics education classroom, *PRIMUS: Problems, Resources, and Issues in Mathematics Undergraduate Studies*, 14, 1-4.

- Groening, M. (2013) *The Simpsons*. [Online]. Retrieved from [www.thesimpsons.com](http://www.thesimpsons.com)
- Gudger, E.W. (1928) A three-eyed haddock, with notes on other three-eyed fishes, *The American Naturalist*, 62, 559-570.
- Hall, J. (2005) Homer Economicus: Using *The Simpsons* to teach economics, *Journal of Private Enterprise*, 20, 165-176.
- Hall, K.J. & Lucal, B. (1999) Tapping into parallel universes: Using superhero comic books in sociology courses, *Teaching Sociology*, 27, 60-66.
- Halpern, P. (2007) *What's science ever done for us? What The Simpsons can teach us about physics, robots, life and the universe*. New Jersey, NJ: John Wiley & Sons.
- Hampden-Thompson, G. & Bennett, J. (2013) Science teaching and learning activities and students' engagement in science, *International Journal of Science Education*, 35, 1325-1343.
- Hare, S.C., Lennartz, R.C. & Matz, C. (2006) The Simpsons as illustration of work-family concepts, In: Sweet, S., Pitt-Catsouphes, M., Mumm, J., Casey, J. & Matz, C. (2006) *Teaching Work and Family: Strategies, Activities, and Syllabi*. Washington DC: American Sociological Association.
- Hobbs, R. (1998) The Simpsons meet Mark Twain: Analyzing popular media texts in the classroom, *The English Journal*, 87, 49-51.
- Jean, A. (2007) Mmm...Pi, *Nature*, 448, 404-405.
- Kristiansen, A. (2001) Animation and teaching: Enhancing subjects from the curriculum by using "The Simpsons" in high school English teaching, *The Simpsons Archive* [Online]. Retrieved from: <http://www.snpp.com/other/papers/ak.paper.html>
- Los Gatos High School (2013) Science on the Simpsons, *Los Gatos High School* [Online]. Retrieved from: <http://www.lghs.net/ourpages/users/dburns/ScienceOnSimpsons/Clips.html>
- Luccasen, R.A. & Thomas, M.K. (2010) Simpsonomics: Teaching economics using episodes of *The Simpsons*, *The Journal of Economic Education*, 41, 136-149.
- Meskill, C. (2007) Through the screen, into the school: Education, subversion, ourselves in *The Simpsons*, *Discourse: Studies in the Cultural Politics of Education*, 28, 37-48.
- Nefes, T.S. (2014) Teaching sociology seminars through *The Simpsons*: Homer under C. Wright Mills' Eye, *Journal of Sociology*, 50, 115-131

Orthia, L.A., Dobos, A.R., Guy, T., Kan, S.Z., Keys, S.E., Nekvapil, S. & Ngu, D.H.Y. (2012) How do people think about the science they encounter in fiction? Undergraduates investigate responses to science in *The Simpsons*, *International Journal of Science Education, Part B: Communication and Public Engagement*, 2, 149-174.

Patterson, R. & Weijer, C. (1998) D'oh! An analysis of the medical care provided to the family of Homer J. Simpson, *Canadian Medical Association Journal*, 159, 1480-1481.

Perales-Palacios, F.J. & Vilchez-González, J.M. (2005) The teaching of physics and cartoons: Can they be interrelated in secondary education?, *International Journal of Science Education*, 27, 1647-1670.

Remlinger, K. (2012) A perfectly cromulent teaching resource, *American Speech*, 87, 248-254.

Rucynski Jr., J. (2011) Using *The Simpsons* in EFL classes, *English Teaching Forum*, 49, 8-17.

Scanlan, S.J. & Feinberg, S.L. (2000) The cartoon society: Using *The Simpsons* to teach and learn sociology, *Teaching Sociology*, 28, 127-139

Şengül, S. & Dereli, M. (2010) Does instruction of "integers" subject with cartoons effect students' mathematics anxiety? *Procedia Social and Behavioural Sciences*, 2, 2176-2180.

Singh, S. (2013) *The Simpsons and their Mathematical Secrets*. London, UK: Bloomsbury Publishing Plc.

Waltonen, K. & Du Vernay, D. (2010) *The Simpsons in the classroom: Embiggening the learning experience with the wisdom of Springfield*. North Carolina, NC: McFarland & Company Inc.

Woodcock, P. (2006) The polis of Springfield: The Simpsons and the teaching of political theory, *Politics*, 26, 192-199.

Yaman, H. (2010) Cartoons as a teaching tool: A research on Turkish language grammar teaching, *Educational Sciences: Theory & Practice*, 10, 1231-1242.

Episode	Episode Name	Scientific Concept	Notes
Season 3 Episode 24	Brother, can you Spare Two Dimes	Archimedes Principle	Homer's workplace use the Archimedes Principle to measure his bodyfat
Season 4 Episode 16	Duffless	Science Fairs	Lisa science fair project trying to prove a hamster is smarter than Bart
Season 5 Episode 15	Deep Space Homer	Centrifuge	Barney and Homer train to be astronauts in a Centrifuge
Season 5 Episode 15	Deep Space Homer	Acceleration and Weightlessness	Homer is launched into space demonstrating both effects
Season 6 Episode 1	Bart of Darkness	Velocity	Determine the impact velocity and height of Bart's fall from the tree house
Season 6 Episode 14	Bart's Comet	Constellations	Principle Skinner introduces a brief lesson constellation
Season 6 Episode 15	Homie the Clown	Newton's First Law	Homer (as Krusty) crashes the car and demonstrates Newton's first law
Season 6 Episode 16	Bart Vs Australia	Coriolis Effect	Bart experiments and researches the Coriolis effect (water down the plug hole)
Season 6 Episode 21	The PTA Disbands	Second Law of Thermodynamics	Lisa designs a perpetual motion machine
Season 6 Episode 25	Who Shot Mr Burns Part One	Metric System	Mr Burns misunderstanding the metric system (weight)
Season 7 Episode 21	The Monkey Suit	Evolutionary Theory	Lisa is taken to court for teaching evolution
Season 7 Episode 6	Treehouse of Horror VI	Dimensions	Homer enters a world with a third dimension. He ruptures space time in this dimension
Season 7 Episode 7	King Size Homer	Newton's First Law (2)	Homer's attempts to injure himself at work demonstrate this law
Season 8 Episode 23	Homer's Enemy	Newton's Third Law	Bart performs a physics demonstration in an abandoned warehouse
Season 10 Episode 7	Lisa gets an A	Elements	Atomic weights of 'elements' are discussed in class
Season 12 Episode 8	Skinner's Sense of Humour	Salt melts ice	Homer rescues the snowbound school by knocking over a salt silo
Season 12 Episode 13	Day of the Jackanapes	Subatomic Particle	Mo has to answer "Which of these is not a subatomic particle?" on a quiz show
Season 12 Episode 2	A Tale of Two Springfields	Time Travelling	Prof .Fink uses time travel to bring Sir Isaac Newton to the present

Season 13 Episode 11	The Bart Wants What it Wants	Periodic Table	Lisa visits a private school that has a periodic table with 250 elements
Season 15 Episode 13	Smarter and Smarter	Velocity in a Vacuum	Chief Wiggums learns that a ball and feather will fall at the same rate in a vacuum
Season 15 Episode 14	The Ziff who Came to Dinner	Powers of Ten	Open sequencing showing the macro and micro scale of the universe
Season 18 Episode 16	Homerazzi	Evolution	Opening sequencing showing the evolution of life
Season 19 Episode 13	The Debarfed	Magnets	Bart makes principal Skinner dance with the help of magnets
Season 19 Episode 14	Dial 'N' for Nerder	Conservation of Mass	Homer sneaks out to work to count the atoms
Season 20 Episode 17	The Good, The Sad and the Drugly	Friction	Bart and Milhouse polish the school illustrating a frictionless surface
Season 20 Episode 21	Coming to Humerica	Projectile Motion	Bart's skateboard jump illustrates how velocity remains constant over the jump.
Season 21 Episode 11	Million Dollar Maybe	Zero Gravity	Homer and Bart rent a Zero-G plane
Season 21 Episode 12	Boy Meets Curl	Kinetic Energy and Potential Energy	Marge converts kinetic energy to potential energy in a curling match
Season 21 Episode 8	O Brother, Where Bart Thou	Static Generator	Bart uses static electricity to power the TV in a power cut
The Simpson Movie	NA	Inelastic Collision	Homer saves his home from a wrecking ball, where does the kinetic energy go?

**Table one: selected scientific concepts portrayed in *The Simpsons***