

Inventing music education games

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The first British patent describing an educational game designed for musical ‘amusement and instruction’ was granted in 1801 to Ann Young of Edinburgh, Scotland. The authors’ discovery of Young’s game box has prompted an examination of the nature and purpose of the six games she designed. Ann Young’s patent is discussed in the context of her cultural environment, the history of women inventors, and eighteenth century educational theory. The activities are compared with musical instruction games recently patented in the UK and the USA.

Introduction

Parents and teachers are acutely interested in developing ways to make learning fun for children, and this is as true in music education as in other fields. In 1801, Ann Young of Edinburgh, Scotland, received a patent from King George III for a children’s game box containing six different games, which would teach the ‘Fundamental Principles of the Science of Music’. British Patent number 2485, entitled ‘Box Containing Dice, Pins, Counters, &c. for Amusement and Instruction’, claims that the games provide ‘Amusing and Interesting’ means for teaching ‘... All the Keys or Modulations, Major and Minor, both with Common and Uncommon Signatures, Musical Intervals, Chords, Discords with their Resolutions, and the most useful Rules of Thorough Bass’ (Young, 1801: 1).

The authors discovered Ann Young’s patent while researching early female British inventors. In our review of the 4090 patents issued by British monarchs between 1617 and 1816, Ann Young’s patent was one of only 40 that included the name of a woman. Of these 40 patents, 33 reflect a female inventor rather than an ‘administratrix’ for a deceased man or otherwise a patentee for a man’s invention. Remarkably, the day after examining Ann Young’s patent at the Hagley Museum and Library in Wilmington, Delaware, we accidentally discovered one of her game boxes at another museum, Winterthur. The game box has most of the pieces in good condition, although obviously used. This stroke of luck, destiny or divine intervention has prompted our article. We have since learned that the apparatus is also owned by the Science and Arts Museum, Dublin (Farmer, 1970: 436).

Our find gives us a chance to provide some background for women’s contributions to early British patent history, examine the role of patented games in music learning, and, of course, share Ann Young’s 1801 British invention.

Our aim in this article is to examine the nature and purposes of Ann Young’s patented games, consider these in the context of 18th century educational philosophy, and make comparisons with more recent games designed for musical instruction. However, we also

have a hidden agenda – to highlight women’s role in patenting, to write women into history. This was the original purpose for our research into early British patents. A discussion of the changing role of women in patenting provides needed context for understanding Ann Young’s musical games.

Women and inventions

Female inventors were quite rare during the 200 years addressed by our original study (1617–1816). While we suspect that many early female inventors went unrecorded, reflecting English custom and property laws, the 40 patents which include the name of a woman represent less than 1% of all 4090 patents granted during the 200-year period. The *numbers* of British inventions by women increased dramatically at the end of the 18th century and during the 19th century but the *percentage* of female inventors remained essentially the same. By way of comparison, as recently as 1954, only 1.5% of US patents included the name of a woman (Tuska, 1961: 4). By 2002 that figure had increased to about 10.9% (USPTO, 2003). While we don’t know the comparable figures in the UK, colleagues informally tell us the proportion of female inventors is smaller than in the USA.

The activity of female inventors varies according to the type of invention. Women’s activity in patenting musical games is greater than in some other areas. For example, of the six British patents granted for musical games from 1995 to 2004, two (33%) were granted to women. Of the five US ‘music education’ patents listed for the single year 2003, three (60%) include the name of a woman. We know from other research that women, internationally, achieve high proportions of patents in certain fields (e.g., higher in chemistry, lower in physics). While these patents may point to a statistical anomaly, we do know that the proportion of women in the music education occupation is greater than in many other occupations. In 2002, roughly 32% of US patents in class 434, Education and Demonstration, included the name of a woman, while *no* patents were granted to women in classes that involved Pipes, Joints or Couplings, Bearings, Clutches and Power-Stop Control, and relatively few in areas involving electricity and mechanics – although these latter proportions are increasing rapidly as women have access to appropriate science education and have employment in industrial settings (USPTO, 2003).

Modern patenting of musical games

While patenting musical games in Britain began with Ann Young, it continues to this day. One can search recent British patents by visiting www.patent.gov.uk. In the 10 years from 1995 to 2004 inclusive, at least six British patents were granted for musical ‘fun’-based instructional devices. They are listed here with their official titles. Asterisks identify female patentees.

GB 2400047	A board game based on music
GB 2371237	Music teaching question & answer game*
GB 2360123	Music teaching aids*
GB 2339629	An interactive music teaching device

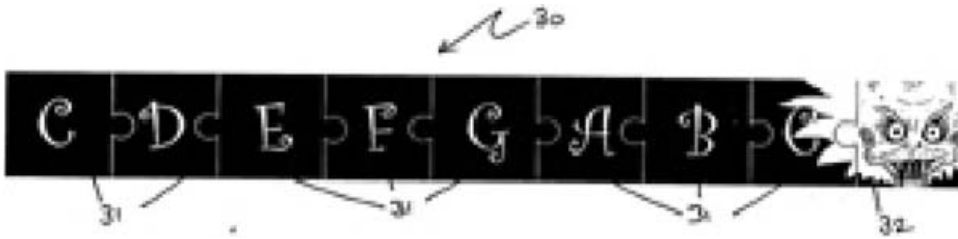


Fig. 2

... a set of question cards and a set of sequentially interlocking pieces. The question cards described bear questions requiring (i) identification of a particular major or minor key signature from a graphical representation of that key signature or a written statement of the number of flats or sharps in that key signature or (ii) which or how many sharps or flats comprise a particular key signature. The set of sequentially interlocking playing pieces described comprises one piece for each note of a scale for each player and may also include an additional final or 'winning' piece. The game may further comprise a clue card. . . (Farrell, 2002: 1).

In the USA 'fun'-based patents for music learning are too numerous for a direct comparison. A search of the US Patent and Trademark Office (USPTO) files for patents containing the term 'music training' identifies five patents in the single year 2003. The term 'music education' elicits the following five additional patents in the year 2003. Again, we report the official titles and asterisks identify patents that include the name of a female inventor. US patent number 6653545 was invented by three patentees, one of whom is female. Each of the other patents identifies a single inventor.

6660921	Colorall fingering*
6653545	Method . . . for remote real time collaborative music performance*
6639138	Music education system
6588756	Playing card system for teaching musical notation*
6541692	. . . adjustable network enabled method for playing along with music

For our purposes, one example should suffice. Others can be found by searching at www.uspto.gov. In 2003 Kimberly Hughes patented a 'Playing Card System for Teaching Musical Notation' (Figs 3 and 4). She describes her invention as

... an apparatus for teaching musical notation to students by playing familiar card games. A deck of playing cards is utilized which contains musical notation and colored suits rather than the typical numbers with named suits. . . . The deck can be used to play a variety of common card games as Crazy 8's and Go Fish as well as new games that take advantage of unique musical notation (Hughes, 2003).

Commercially this deck of playing cards is sold for \$12.95 as 'Crazy 8ths' and comes with an illustrated instruction booklet that explains 10 games for ages six and up. These activities allow for one to nine players and come with the slogan 'Reading music is in the cards'. 'Crazy 8ths' has won awards from the National Parenting Center and Dr. Toy. A teacher's kit is available for \$37.95 (Hughes, 2001).

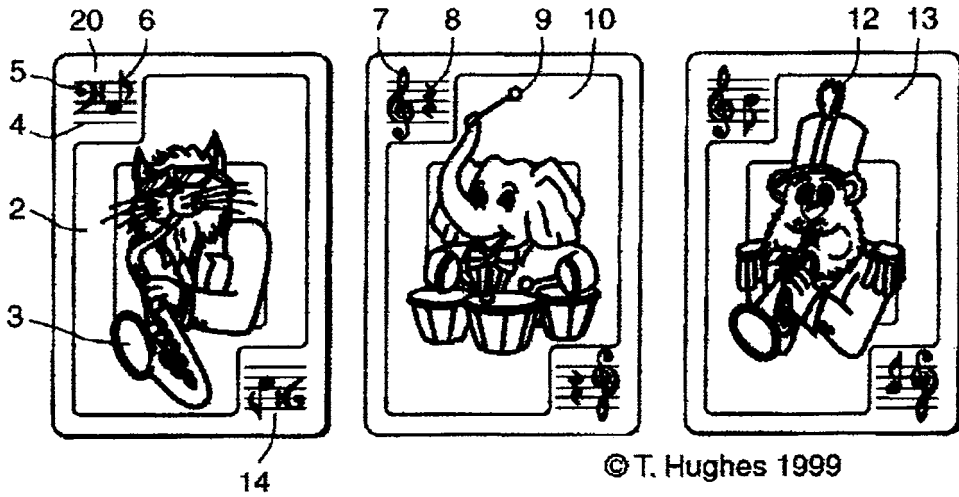


Fig. 3

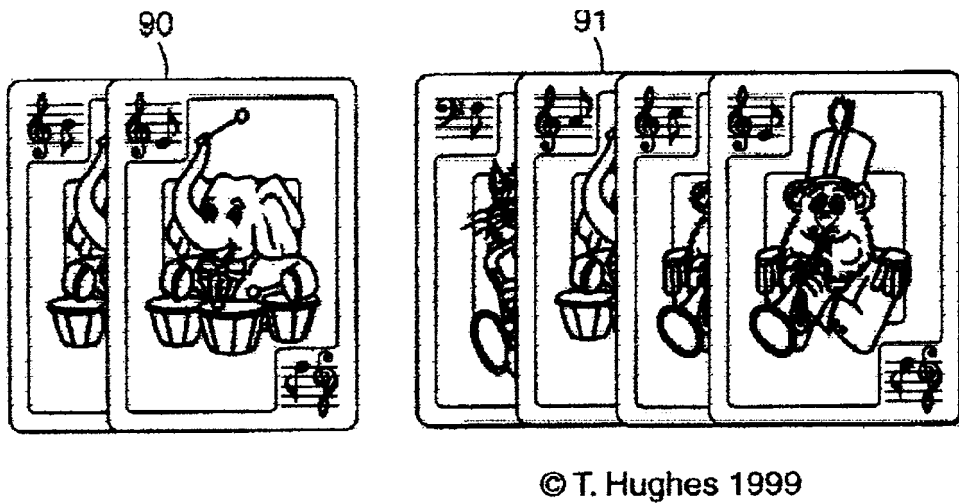


Fig. 4

Hughes states her goal thus: 'To entice students to memorize musical notation for the purpose of reading and performing music, the present invention endeavors to make this experience more entertaining and thus more successful.' She underlines her goal by writing, 'By playing card games with these musical notation cards, the student becomes fluent in reading music' (Hughes, 2003). In other words, in this game, as in all the others identified here, the inventors hope to teach music-related *skills*. We have found *no* patents that purport to teach music as history, culture or appreciation. The focus of all of these music education-based patents is *exclusively* on reading and performance.

Teachers' motivation for providing skill-based music education to youngsters seems to be to introduce the children to the language of music, a language to which they have not been exposed. The educators, correctly or otherwise, assume that existing language skills (e.g., colours, the alphabet) can be used as a bridge to learning a new language. They theorise that play makes learning more fun and consequently more successful. Games provide a pedagogical tool.

Playful learning, educational play

It can be argued that music instruction in the UK during the 18th century focused on helping youngsters establish their place in society. Musical performance was a highly prized skill among the upper class. Music appreciation and knowledge was an expected part of the education of any future gentleman or lady. With the emergence of new wealth from manufacturing and world trade, many sought to convert their impressive economic position into a comparable social status. Competent musical performance and knowledgeable music appreciation were skills that the children of the newly wealthy could use to show that they deserved to be members of the upper class of society.

We will examine the educational attitudes prevalent when Ann Young conceived of her musical games. Just as John Dewey's *Democracy and Education* (Dewey, 1916) dominated educational theory during most of the 20th century, John Locke's *Some Thoughts Concerning Education* (Locke, 1692) dominated much of the 18th century – even well into the 1800s. Although written more than 100 years before Ann Young patented her game, Locke's basic theory set the stage for a new recognition of the 'childlike' nature of children. Locke's writings were particularly popular in the last quarter of the 18th century on both sides of the Atlantic Ocean. Note, for example, how much of his *Two Treatises of Government* became a basis for both the United States Constitution and the Declaration of Independence.

Locke (1632–1704) and others argued, at the time, that learning can and should be enhanced by making education a play activity. His *Thoughts Concerning Education* were influential throughout Great Britain. 'None of the things they are to learn, should ever be made a burthen to them, or imposed on them as a task', writes Locke. He continues, 'Let a child but be order'd to whip his top at a certain time everyday... let this be but required of him as a duty... and see whether he will not soon be weary of any play at this rate' (Locke, 1692: 14). In other words, play is good, repetitious exercise is not. As we examine the Ann Young games it is worth asking whether her activities are truly play or are mere playful exercises.

Locke's theory of learning through play created a setting where instructional games became pervasive. Jill Shefrin writes,

...by the beginning of the nineteenth century, virtually every genre of children's literature and every subject of the curriculum were available. There were games to teach geography, history, religion, science, arithmetic, music, art, reading, grammar, languages, astronomy, mythology, morals and codes of conduct. (Shefrin, 1999: 253)

Locke's theories of learning at play continued through the 18th century. Three years before Young patented her game, Maria Edgeworth (1767–1849), famed Irish author of *Letters for Literary Ladies* (a plea for reform in woman's education) and *The Parent's Assistant*, published the influential *Practical Education*. It was now more than 100 years after

Locke's work and Edgeworth argued for 'educational' play that was even freer than Locke had proposed. Edgeworth argued for learning by invention and discovery and proposed guidance and stimulation with only limited structure.

She rails against toys that cannot, or should not, be broken. The child, she asserts, breaks toys, not out of mischief, but because 'he wishes to see what his playthings are made of, and how they are made, and whether he can put them together again if the parts be once separated' (Edgeworth, 1798: 2). The child wants to know how 'things' work, and should be encouraged to explore. Here she reflects a 'rethinking, from Locke onwards, of the concept of nature: if nature is good, then children must also be good' (Steward, 1995: 193). She specifically argues against punishment for acts of curiosity or 'childlike' behaviour.

Edgeworth encourages 'doing', physical activity, involving the body in the learning process. Motor skills are part of the learning process. She recommends allowing the child to test 'pushing and pulling, rolling or sliding, the powers of the wedge or the lever' (Edgeworth, 1798: 9). 'Toys which afford trials of dexterity and activity, such as tops, kites, hoops, balls, battledores, ninpins, and cup and ball are excellent' (Edgeworth, 1798: 17).

Edgeworth, however, abhorred games. 'Indolent persons are fond of games of chance, because they feel themselves roused agreeably from their habitual state of apathy, or because they perceive, that at these contests, without any mental exertion, they are equal, perhaps superior, to their competitors' (Edgeworth, 1798: 34). She sees gaming as an escape from idleness. The truly busy person is involved in more creative activity.

Another 18th century educational advisor was Lady Ellenor Fenn (1743–1813). Her imaginative stories for children were often intended for a parent audience as well. Writing under the pseudonyms of Mrs Lovechild and Mrs Teachwell she became a guide to help mothers teach children to develop reading, grammar and mathematical skills (see especially her *Art of Teaching in Sport*). Often her books taught skills to the mothers as well as the children – and taught mothers how to teach children. Interestingly, Fenn also developed educational toys most of which, unfortunately, have not survived. Via books or toys, she clearly was 'an early advocate of child-centered teaching strategies' (Immel, 1997: 217).

Like Locke and Edgeworth, Fenn advocates the 'impromptu lesson', now called the teachable moment. She emphasises conversation as a teaching and relationship tool. 'When curiosity prompts a child to ask for information, the mother needs to satisfy his hunger: 'Curiosity is the inlet of all knowledge'' (Immel, 1997: 217). Fenn's 'games' primarily use simple cards, like modern flash cards, with a single letter, word or image on each one. She encourages uncomplicated games to enhance the child's success experiences and encourages the mother to improvise games avoiding complex rules (Immel, 1997: 223).

Meanwhile, in France, Madame de Genlis (1746–1830) was a leading authority on educational theory. In addition to her fame as a novelist she earned credibility as 'governess' to royalty. During the last quarter of the 18th century she was a strong proponent of her theories regarding the education of children. She encouraged keeping pupils continually occupied, teaching modern languages, studying nature 'in all its forms' and, like Edgeworth, she was an advocate for physical activity. She may have been the first in France to introduce gymnastics, 'which was very in advance of her time' (Wyndham, 1958: 83). De Genlis also had her students actively engaged in singing and drama. She worked at teaching life skills to her charges. Prince Louis-Philippe, later to become king of France noted, 'She brought us up with ferocity' (Wyndham, 1958: 98).

Ann Young

We have limited information about the inventor, Ann Young. She is described in Grove's Dictionary of Musicians as 'a concert pianist and educationist who invented and patented a set of musical games' and died in 1826. However, she does not merit her own citation in Grove's 29-volume work, but is mentioned incidentally in the entry about her husband, John Gunn, whom she married in 1804. Gunn was a Scottish scholar, cellist and flautist, born in Edinburgh c. 1765 and educated at Cambridge. He was a flute and cello teacher in London from 1790 to 1802 and in Edinburgh from 1802 until his death in 1824 (Sadie, 2001: 586).

Kassler cites dates different from the Grove entry. He claims that she married in 1803 and probably died before 1820. Kassler further writes that she 'appears to have been raised by her brother, a musical amateur, who was her guardian. She probably received an education suitable to her middle-class status and became a governess'. He refers to her 1803 two-volume novel, *The Mother & Daughter*, which we have not seen cited elsewhere (Kassler, 1979: 431).

The *British Musical Biography* identifies Ann Gunn, born Young, as a pianist and writer, wife of John Gunn. She is also identified as the author of the 1803 publication, *An Introduction to Music... Illustrated by the Musical Games and Apparatus* (Brown & Stratton, 1971: 176), an allegedly simplified set of games for children. The book also provides instruction about musical theory so that 'persons yet uninitiated, and who had not the opportunity of oral instruction, might be able to comprehend them, and to practice the Games with advantage' (Kassler, 1979: 434).

Henry Farmer, in his *History of Music in Scotland*, refers to a second book by Young, *Elements of Music and of Fingering the Harpsichord*, also published in 1803 (second edition in 1820) which he describes as the earliest 'pianoforte music and literature from Scotland' (Farmer, 1970: 406). He praises motor activity in Young's games, which 'deserves the attention of modern educationalists because of the extreme importance of the motor factor in education' (Farmer, 1970: 436). Furthermore,

Little attempt has been made in the special application of teaching music to the younger children. Ann Gunn, in her admirable *Introduction to Music* (Edin., 1803), where the elements of music were explained and taught by means of musical games, opened the door to a fresh approach, but this delectable book has been forgotten by educationists (Farmer, 1970: 386).

Subsequent to receiving her 1801 patent, Ann Young, now Gunn, invented another game called *Musical Cards* consisting of a deck of 52 cards to teach 'common time, triple time, and every other species in use, by a variety of interesting games...'. She claimed that some of the activities resembled the game of whist. The game was not patented and little is known about the game although apparently it was sold by an Edinburgh vendor and by her husband, John Gunn (Kassler, 1979: 436).

Ann Young was a rarity in the music world since women could not obtain university degrees in music (Rohr, 2001: 67). Furthermore, becoming a professional musician, a performer, at the time required significant courage. We learn from Deborah Rohr that '... traditional association of music with immorality... could take on even more virulent

forms once women crossed unambiguously into the public sphere' (Rohr, 2001: 11). She compiled a catalogue of British musicians between 1750 and 1850 and only 36 (3.2%) of the instrumentalists in the catalogue were women, and most of those after 1820. Instrumentalists did not command the high salaries of singers, but as a soloist on the harp and piano she should have been able to maintain a modest living. Teaching music would provide additional income and it was a more respectable employment for a woman (Rohr, 2001: 113, 134).

The patent document provides only Ann Young's name and residence, but no information about her age, marital status, number of children (if any), occupation, or station in society. Her residence, St. James Square, Edinburgh, Scotland, is very revealing in a general way, especially considering her own apparent modest income. St. James Square was built between 1775 and 1790 as an addition to the New Town area in Edinburgh (Youngson, 1966: 98). Responding to 18th-century industrialisation and urbanisation, New Town had been designed to satisfy the desires of the urban wealthy to be 'insulated from the disease and crime of the old [city] centers' (Glendenning, 1996: 169). This 'new, elite residential suburb' with 'spacious streets and large buildings' was to 'be restricted to 'people of fortune and a certain rank'' (Glendenning, 1996: 170). St. James Square had buildings surrounding the square which 'provide[d] a unified 'palace-front' appearance' (Youngson, 1966: 98) 'and the center of the square was a fenced-in garden with grass and trees' (Youngson, 1966: 75). Robert Burns had lived there in 1787 at the height of his fame, and 14 years later, Ann Young was residing in these elegant residences when she received her patent (Youngson, 1966: 98).

We cannot be certain of Ann Young's role in one of these wealthy households; governess or music teacher would be most likely, but patenting her invention required access to a considerable sum of money. She needed to travel to London to take care of her business or, more expensively, to send an attorney. A paragraph near the end of her 23-page patent indicates that she had a paid agent to do at least some of the work. We read:

And be it remembered that on the Sixteenth day of April, in the year mentioned the aforesaid Ann Young, by the said Benjamin Nind, her attorney, came before our Lord the King in His Chancery, and acknowledged the Specification aforesaid, and all and everything therein contained, in the form above written (Young, 1801: 23).

That Ann Young applied for a patent at the turn of the 19th century is especially interesting. The fact that she was the only woman who received a patent in 1801 demonstrates considerable independence. Firstly, women's property rights were quite limited until 1870, so patents were usually issued to a husband, father or a guardian brother. On the other hand, if she were a widowed music teacher, her ownership of the patent would be much more acceptable but her access to the necessary finances would be more problematic. Secondly, it would appear 'unseemly' for a woman to mix in the world of commerce in Great Britain of 1801, and the manufacture and marketing of Ann Young's musical game box would require extensive commercial interaction. Regardless of her role in the household, that need to interact in commerce may account for her hiring a male agent.

What motivates a woman to take the risk and expense of applying for a patent? Probably the same reason that motivates a man. Profit. The patent gave Ann Young a 14-year monopoly to commercialise her musical game ‘within England, Wales, and Town of Berwick-upon-Tweed’ (Young, 1801: 1). She hoped to manufacture and vend enough game boxes to recover her patenting costs and to net a profit.

The Edinburgh music scene at Young’s time

Edinburgh, Scotland was a regional European centre for classical music in the mid- to late-18th century, flowering particularly between 1760 and 1780. The Edinburgh Music Society sponsored a series of concerts throughout the year and a group of excellent composers, musicians and singers, many from continental Europe, had established residence there (Johnson, 1972: 199). A visitor observed in 1775 that the interest in music in Edinburgh ‘exceeds belief. It is not only the principle entertainment, but the constant topic of every conversation; and it is necessary not only to be a lover of it, but to be possessed of a knowledge of the science, to make yourself agreeable to society’ (Johnson, 1972: 13).

This situation had deteriorated by the turn of the century. Declining income in the 1780s and 1790s restricted the activities of the Edinburgh Music Society and by 1792 William Tyler complained of ‘the languid spirit and taste for music’ in Edinburgh (Johnson, 1972: 14). Publication of music in Edinburgh continued, sometimes utilising local artists and composers and sometimes employing well-known European musicians including Haydn and Beethoven to do compositions of Scottish music. Financial problems finally forced the Edinburgh Music Society to cease operations in 1798 (Johnson, 1972: 41, 144–6).

This decline was common throughout Britain and by the 18th century music was generally viewed as a ‘craft with... poor long-term economic or social prospects’ (Rohr, 2001: 10). The decline was accentuated by the dramatic inflation of the war years 1790–1815 which resulted in higher prices and reduced income for musicians as public support for music concerts waned (Rohr, 2001: 154–5). In addition, women ‘had to navigate cultural prejudices about music and musicians, restrictions on women’s musical education, prejudices about women appearing in public, and some resistance among their male colleagues in the profession.’ (Rohr, 2001: 12). Perhaps a performer would begin to seek an alternative career.

Young’s impetus for patenting

As noted earlier, a plethora of games were available in Great Britain at the end of the 18th century,

... alphabet and reading games, often dependent on the involvement of a parent or teacher; dissected puzzles; table games, usually for older children and focusing on specific areas of instruction; and card games, although for a large part of the period these were out of fashion due to their association with adult gambling... (Shefrin, 1999: 255).

According to Shefrin, ‘Music games were quite common and often extremely sophisticated’. Wallis’ *Game of Musical Domino* (1793) consisted of 35 dominos made of printed sheets

pasted on wooden pieces. Shefrin also notes Goodban's Game of Musical Characters (1818) which promised a knowledge of time, the names of the notes in the base and treble clefs, the nature of intervals and much more (Shefrin, 1999: 270, 271).

Shefrin's almost encyclopedic discussion of educational games in Georgian England provides fascinating examples of games and the educational philosophies that argue for playful learning. Interestingly, none of these games was patented in Great Britain. Why was Young the first to patent a music education game? Why was she the first to patent any game?

The Industrial Revolution provided an impetus for patenting. A vast array of products, including textiles, household utensils, games, furniture and tools, could now be mass produced at low prices, transported great distances, and then sold in large numbers. The Industrial Revolution also fostered the accumulation of great wealth through manufacturing and world commerce which increased the demand for these products. When craftsmen produced objects one at a time they sold few and had little motivation to protect their skill or their designs; mass production opened the potential of enormous markets. An inventor's creation (intellectual property) could suddenly open the possibility of great profit, so protecting one's idea from imitators became worthwhile.

Patent law evolved appropriately. It is noteworthy that during the pre-industrial 130-year span of 1617–1746 the number of patents per decade fluctuated up and down without any apparent pattern. However, with the advent of the Industrial Revolution, the next seven decades revealed a dramatic increase in the total number of patents (i.e., 91, 156, 276, 437, 574, 847 and 1090) and a similar, although delayed, increase in the number of patents granted to women (i.e., 0, 3, 2, 2, 4, 7 and 10). Ann Young's patent was among the 7 patents granted to women and 847 total patents issued during the sixth of those decades, spanning from 1797 to 1806.

Young's patent is the first in British history for a musical game. Indeed, it is the first for any type of game. The music scene at Young's time suggests that the time was right for her to shift her music talents from performing to another music-related enterprise. Further, the educational theory of the period suggests playful educational activities. Finally, the opportunity to mass produce games (instead of making them individually in the home) suggests that there was value in protecting a commercial opportunity.

Thus, in summary, Ann Young was a concert pianist whose opportunities for both income and renown as a performer were on the wane in Edinburgh. In 1801 she patented her box of musical games and in 1803 she published a book about the use of her games in Music education, *An Introduction to Music... Illustrated by the Musical Games and Apparatus*. The same year she also published *Elements of Music and of Fingering the Harpsichord* (Farmer, 1970: 406, 436).

Ann Young's patented game

With an improved patent system and the Industrial Revolution in full swing, the time was ripe for new mass-produced, patented games. For example, in 1799 Edmund Ludlow and Ann Wilcox jointly patented a card game which they described as a 'brilliant new

invented Knight's Cards'. Ann Young followed with her 1801 patent which provides for six educational games. In her patent she describes a

... new invented apparatus consisting of an oblong box, which, when opened, presents two faces or tables, and of dice-pins, counters, &c. contained within the same, by means of which six different games may be played, which besides being amusing and interesting... are at the same time an improving exercise... [in] the fundamental principles of the science of music, particularly all the keys or modulations, major and minor, both with common and uncommon signatures, musical intervals, chords, discords with their resolutions, and the most useful rules of thorough bass... (Young, 1801: 1).

In this small section we find several interesting points. First, her games are *alleged* to be 'amusing and interesting', as are the games we cited earlier. Learning is, can be, and ought to be fun. Second, she refers to the 'science of music'. Not art! This is serious and exacting learning. Approximations are not adequate. Here again, one might review the education theories of Locke, Edgeworth, and especially Fenn, and Young's promise of 'amusing' games vis-à-vis the actual rigidity of the games. Thirdly, she lists some skills and concepts to be learned. They are difficult. Unlike other games we've examined, Young expects expertise beyond simple note reading. This last point becomes more startling when we add that Young writes in her patent that her 'six different games' are 'such as children of eight years old may be taught to play' (Young, 1801: 2). The game requires so much prior knowledge that one wonders how many students of music of any age were (and are) proficient in all that Young expects from children of eight.

A quick look at the game suggests that it was expensive. Made of mahogany, typical for the period (Shefrin, 1999: 252), ivory, brass and expensive printed paper, it is beautiful to behold and clearly well made. The lockable rectangular mahogany box is hinged and can be opened to reveal playing surfaces (Fig. 5). When closed, the box measures 17.50 inches (44.45 cm) by 10.75 inches (27.31 cm). We let Young describe the artifact and its accessories:

The box is composed of two equal pieces of frames of cabinet work, united by hinges...; when it is opened or spread out the two pieces exhibit different faces, the one presents at each end two musical staves... In each line and space of these staves a number of small holes are drilled, in which are occasionally stuck the pieces of turned ivory and wood, which are designed to represent the sharps and flats that severally belong to the different keys or modulations of music. Under each of these staves there is a drawer, in one of which are contained the dice, pins, &c. which are used in playing with sharps, and in the other the corresponding dice, pins, &c. which are used in playing with flats. These drawers are pulled out from the ends of the frame, and when in their places, are kept firm by brass pins running through the edge. In the middle space between them are contained two dice boxes; when these are taken out and the game is to be played, this vacant space is covered by a movable lid... (Young, 1801: 2).

The box includes a key for locking as well as additional playing pieces and ivory counters not listed in Young's paragraph but identified later as the rules of the games are described. A sand timer is included as well as a leather dice shaker. Additionally one finds

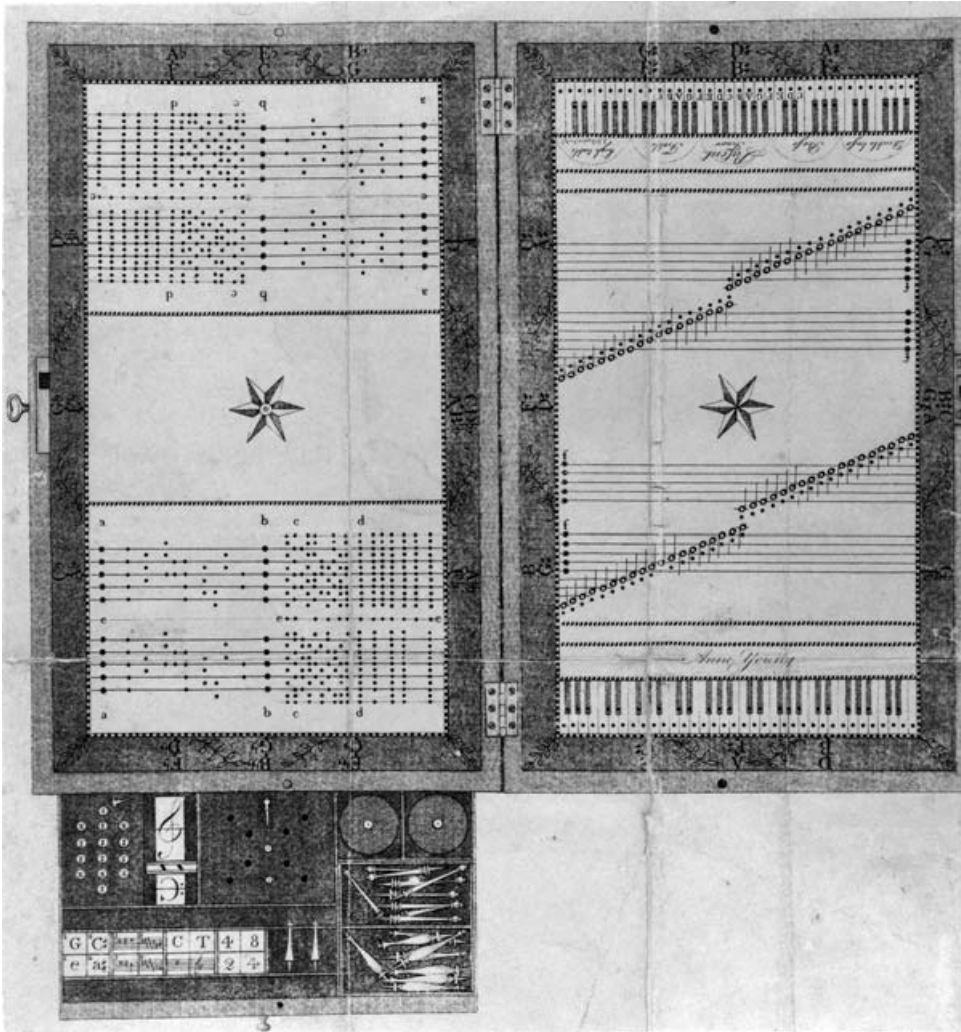


Fig. 5

a paper sheet on which is printed a 'Circular System of all the Major & Minor Keys with Uncommon Signatures'. One guesses that the game is made for people of some wealth who can afford this beautiful game and who have the leisure to provide very advanced music lessons for their children (Figs 6, 7 and 8).

The British critic J. W. Caldecott noted that the price of the game box was seven guineas 'and that it was rumoured the patent and other expenses leading to the completion of the project amounted to nearly one thousand pounds'. There is some evidence that the patent may have been assigned to an Edinburgh music seller for £300 which would suggest that Young lost money on the invention (Kassler, 1979: 435).



Fig. 6



Fig. 7

The patent document serves as an instruction manual providing a complete listing of all the pieces, rules for each game and objectives of each game. 'Game 1, Circular System. – The object of the first game or exercise is to impress upon the memory and to render easy and familiar the signatures of all the major and minor keys of music' (Young, 1801: 4). Interestingly, Young refers to a 'game or exercise'. She makes no distinction between the fun and the practice. Indeed, 'exercise' becomes even more appropriate when we learn that she intends to teach young 'performers' and to free them from embarrassment. Consequently she encourages the players to learn keys or signatures of more than six sharps or flats because they appear in the works of eminent composers. She continues '... and double sharps and double flats which necessarily result from such numerous signatures, frequently occur...' (Young, 1801: 5). The reader is reminded that this is the simplest exercise and by Young's specific statement geared to 8-year-old children.

As further evidence that Young is performance oriented, she writes, 'A piece of music written in the major key of F# or minor of D#, with six sharps, will be played by the same finger touches as if it had been written...' (Young, 1801: 6). Clearly she assumes that a keyboard is nearby – and a paper keyboard is indeed nearby on the game board that will be used in several of the games. Further she writes, '... a piece of music, the key note of which upon the instrument is any one of the twelve finger touches comprehended within the octave...' (Young, 1801: 6). Again her 'finger touches' refer to an instrument that one is learning to play.

After explaining 'uncommon' signatures and additional music theory, we begin to learn the rules of the first game. Young lists the various pieces that must be removed from the drawers. Each player throws one die and the player with the greatest number of sharps or

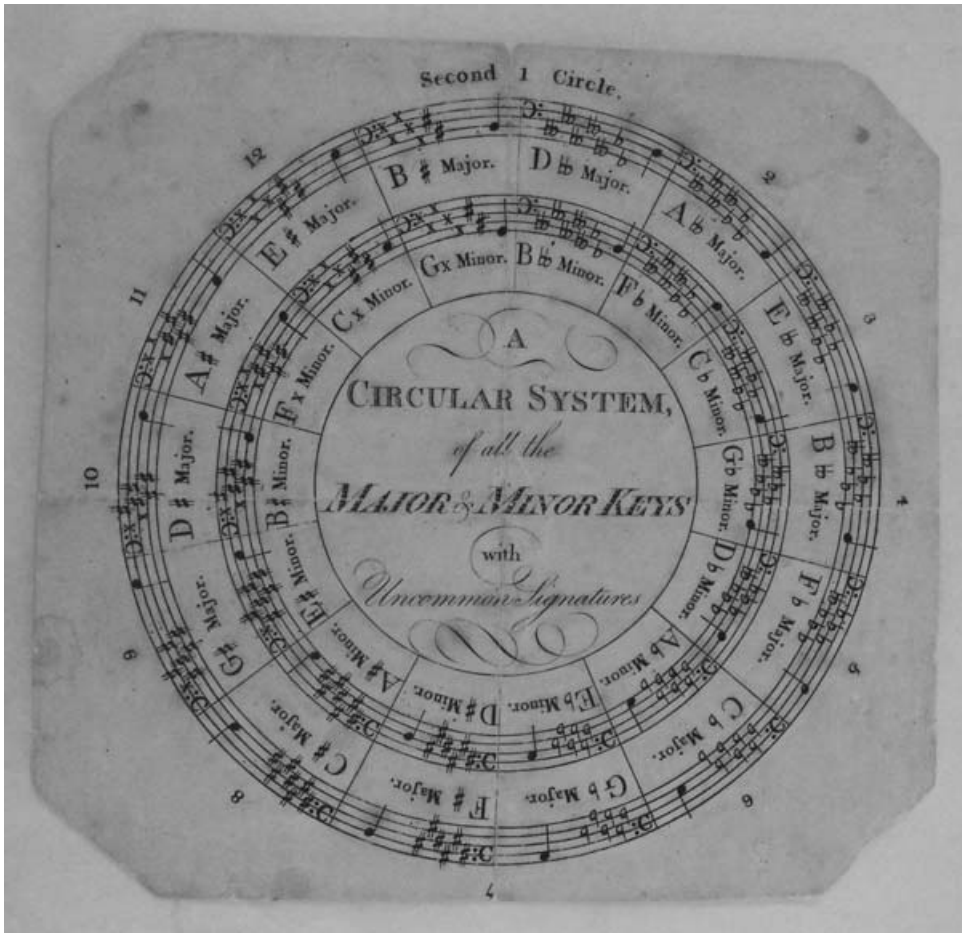


Fig. 8

flats plays first and has the choice of playing with sharps or flats. The rather complex game includes naming and arranging the sharps and flats on the board in the 'exact order in which they enter the musical system' (Young, 1801: 7) by placing appropriate pins in the holes provided as guided by rolls of the dice. Not surprisingly, in instructing the players, Young refers to 'he' and 'his'. As the 18th century became the 19th, gender-neutral language was not yet in vogue.

Each player in turn throws, names and arranges. After each time the second player has completed a turn, they count the number of sharps or flats set up correctly. Whenever a player has three more than the other, 'he' gains a point marked by an ivory counter. Extra points may be gained for special rolls of the dice (e.g., when both dice show the same letter as E and e or F and f). Forfeiture of points is possible when a player incorrectly names or places sharps or flats of the keys presented by his dice. Further, if the opposing player

can correct the error, such player gains a point marked with an additional counter. And so, complex rules and special cases allow for gaining and forfeiting points – sometimes by luck of the throw and sometimes by knowing the information. The player who first gains 12 points (puts up 12 counters) wins the game.

The second of Young's six games is an 'exercise upon the intervals of music'. Again, 'exercise' is Young's language. She begins this section in her patent with an extended 'Table of Intervals' along with an explanation of concordant and discordant intervals. In her instruction she refers specifically to 'Intervals upon the clavier or key board' providing further evidence that her ultimate goal is to teach performance.

In game two the players again determine who plays with sharps and who plays with flats. The person playing with sharps places an appropriate pin on the A key of the double bass octave of the keyboard shown on the playing surface. Young refers to this keyboard as the player's 'clavier'. This player's object is to ascend to the highest. The other player sets a pin on the highest key F and the object is to move down to the lowest.

When the dice are thrown the player by attending to the signatures and notes which they present, and by comparing them together, must tell the names of the two keys, and which of them is major and which minor; he must also tell the exact musical interval betwixt them, and whether that interval is concord and or discordant; if then the interval is concordant, he moves his pin the exact extent of it forward, or according to the proper direction of his game; if it is discordant, the extent of it backwards . . . (Young, 1801: 10).

Then with special rules, exceptions, extra opportunities presented by the dice and forfeits for errors or bad luck, a winner is determined. The rules of the game are even more complex than the music theory to be learned. At one point this 8-year-old player is challenged to

. . . place a pin in the key, which is imperfect prime to that in which . . . the pin of the thrower stands, at the same time telling the names of both, and the particular octave of the instrument in which they are. If he executes this accurately, he gains a 5th; if he fails he must go back a major 3rd (Young, 1801: 11).

The third of Young's six games teaches 'Cadences or Preludes'. Game four is called 'Rule of the Octave' and the title of game five is 'Of the resolution of discords'. Game six is 'An exercise upon regular modulation in the major mode, or the method of passing from any key to the key of its 5th toward the one hand, or to the key of its 4th toward the other hand' (Young, 1801: 18).

At the very end of her description of game six, in which she requires the most sophisticated musical knowledge, she suggests that when the game is 'played by a master and an advanced pupil' the problems posed by the dice may become subjects for instruction. They may pose ' . . . an harmonical problem, in the solution of which knowledge and ingenuity may be displayed'. She concludes, 'A piano-forte ought to be at hand, and every progression made upon the clavier to be proved upon it' (Young, 1801: 22–3).

And there, at the end, she underlines that her game using a game-board 'clavier' can be proved by playing a real instrument. Her games really have been 'exercises' to enhance performance. How 'playful' are the games assigned to Young's apparatus? It is interesting

to question the 'playfulness' of structured games in general and the Young musical games in particular as we examine educational theory.

Analysis of the game

First, Young's musical activities overtly stress competition between the players as a motivation to master musical concepts. The goal is to defeat opponents and win the game. Young refers to the frequent counting of points as 'comparative reckoning'. Does this reflect attitudes about educational methods at the beginning of the 19th century or the expectations of proud parents that their children demonstrate superiority over other children?

Modern educators are not agreed that competition is a motivator. Does repeated losing encourage one to try harder or to give up hope? Does 'comparative reckoning' teach collaborative learning and behaviour or does it teach unwarranted competition, isolation and distrust? Johnson and Johnson claim that in competitive classroom situations there exists a negative interdependence between the goals of various students. One student achieves success only at the necessary expense of the failure of other students. Through cooperative learning students can work together to maximise each student's learning (Johnson & Johnson, 1989).

The complicated rules of the game as well as the theory to be learned certainly do not coincide with Fenn's recommendations, noted earlier, for absolute simplicity in rules and content of games. Fenn's games consist of cards with a single letter, word or image and, further, are not played against an opponent. Competition is not part of the play activity.

Edgeworth recommended exploration and discovery, never rote learning. She abhorred games of all kinds, suggesting that they appeal to the indolent without the imagination to invent their own learning and growing activities.

All our 'experts' perceived the child as 'childlike – not a small adult'. Would any of the 18th century authorities we cited, even the 17th century Locke, recommend the complications and the sophistication of the Young activities as 'playful' learning for a young child? De Genlis certainly would have encouraged performance. However, would she have such rigorous and complex performance training for an 8-year-old?

Are the complicated Ann Young games and complex music theory appropriate for the typical 8-year-old? Was there really a market for such a sophisticated game – even in the 19th century? In another examination of the Ann Young patent, Jennifer Ley asks questions similar to ours. '... how did small children react to games like these; did they enjoy them as much as educators believed in them?' (Ley, 1995: 12). J. W. Caldecott, in his 1803 review of the game in the *British Critic*, is more direct than Ley. Although he admired the invention he deemed all the games too difficult for beginners without the assistance of an instructor. He believes that the inventor was cognisant of this problem as evidenced by her *Introduction to Music* which includes simpler games (Kassler, 1979: 433).

A final note: Ann Young's activities have a number of similarities to the 2002 patent of Isabel Farrell mentioned earlier. While Young's clavier has holes to hold the pins the players will use, it is somewhat startling to note how much this game board looks like the clue card keyboards in Fig. 1. A comparison to Fig. 5 suggests that Isabel Farrell in British patent 2371237 has pedagogical ideas similar to Young's. She too is teaching about sharps and flats, although at a much more elementary level. Did Farrell see the Young patent?



Fig. 9

So little work has been done with early British patents and the artifact is so rare that one must assume that Farrell has simply come up with a similar creation. Despite similarities to Young's game, Farrell's play certainly includes significant differences.

Further questions

Scholarly articles leave unanswered questions for the next doctoral candidate to resolve. Here are two.

First, how many of Young's games were manufactured? How many were sold? Where? To whom?

Second, in photographing the dice shaker we noted an odd sticker on the underside (Fig. 9). Where is the Danforth House that is mentioned on the sticker? In the UK? The USA? Who applied the sticker? Personnel at Winterthur, the museum in which we found the artifact, cannot explain it.

We leave these and many more questions for others – especially for those closer to the scene of the invention where demographic records can more easily be examined.

Summary

Early British patent history confirms that the Industrial Revolution had a major impact on the desire to protect intellectual property. Mass production led to mass selling, which in turn led to the potential of great profit. Patenting continued and included the patenting of musical instruments and, as we show here, patenting of games to teach aspects of music.

Such games are based on the theories of Locke, Edgeworth, Fenn and others which assert that learning can and should be fun. These games also build a bridge between the languages a child knows (colours, alphabet) and a ‘foreign’ language such as music. We raise questions about the ‘fun’ in the music education games. Are they really exercises in disguise? The rigours of Ann Young’s games seem to reduce playfulness.

Most music education is skill based and probably all patented music education games are skill based – even performance based. We have found *no* patented music education efforts that teach music in a liberal arts or social science context. Modern patented music teaching games have much in common with Ann Young’s 1801 patent. Similar skills are taught and teaching devices are sometimes similar. Note especially the similarity between Farrell’s keyboard image (Fig. 1) and Young’s keyboard playing surface (Fig. 5).

Female patentees, although rare in the history of invention, have had significant influence in selected fields – especially music education. Certainly, Ann Young was a pioneer among women inventors. Roughly two dozen female patentees came before her in the English-speaking world and hers was the first for a game. She also was quite remarkable for her accomplishments as a music performer and writer. She certainly was a pioneer in a diversity of endeavours and, perhaps, the very first to bring an industrial cast to music education.

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Picture credits

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 Figures 3 and 4, US patent number 6588756.
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