

رہنمائی اسائنسٹ (خرزاں 2019)

کلاس ایم ایڈ / ایم ایجو کیشن



کورس کوڈ (6553) اسائنسٹ نمبر ٹو

STUDIO-9  
15-04-2020 جمع کروانے کی تاریخ

AIOU STUDIO 9  
مجانب: 9 AIOU Studio

اسائنسٹ کب تک جمع کرو سکتے ہیں:-

- 1 10 اپریل 2020 تک اسائنسٹ بذریعہ رجسٹرڈ اکٹ ٹیوٹر کو جمع دیں۔
- 2 15 اپریل 2020 تک اسائنسٹ دستی ٹیوٹر کو جمع کرو سکتے ہیں۔ دستی جمع کروانے کی رسید لازمی لیں۔
- 3 اسائنسٹ جمع کروانے کی آخری تاریخ 15 اپریل 2020 ہے اس کے بعد ٹیوٹر اسائنسٹ جمع نہیں کرے گا۔
- 4 رسیدنہ لینے سے یا اسائنسٹ جمع نہ کروانے سے آپ فیل ہو جائے گئے۔

ٹیوٹر کی معلومات کب تک ملے گئی:-

- 1 ٹیوٹر کی معلومات علاقائی دفتر کی جانب سے بذریعہ ڈاک آتی ہے۔
- 1 ٹیوٹر کا نام و پتہ یونیورسٹی کی ویب سائٹ <https://aiou.edu.pk> پر اپ لوڈ بھی کیا جاتا ہے۔
- 2 اگر 10 جنوری تک ٹیوٹر کا نام و پتہ ویب سائٹ پر نہ آئے تو یونیورسٹی کے علاقائی دفتر سے بذریعہ ٹیوٹر کی میل رابطہ کر کے حاصل کر لیں۔ (مزید اپ ڈیٹ یوٹیوب چینل 9 AIOU Studio سے حاصل کر لیں)

رہنمایا صول اسائنسٹ لکھنے کے لیے:-

- 1 اسائنسٹ کے تمام سوالات لازمی ہیں۔
- 2 جواب لکھنے سے پہلے سوال کو غور سے پڑھیں نیز اپنی اسائنسٹ خود تحریر کریں۔
- 3 امتحانی مشق ہاتھ سے تحریر کریں۔ ٹائپ شدہ امتحانی مشق قبول نہیں کی جائے گی۔
- 4 طویل سوال کا جواب کم از کم 1200 سے 1500 الفاظ پر مشتمل ہونا چاہیے۔
- 5 ہر جواب کے آخر میں دو یا تین لائیں خالی چھوڑ دیں تاکہ ٹیوٹر آپ کے جواب پر فیڈ بیک دے سکے۔
- 6 ہر امتحانی مشق کے ساتھ تین پرتوں لگائے۔ اور خود پر کریں۔
- 7 ہر امتحانی مشق رجسٹرڈ اکٹ کے ذریعے علیحدہ روanonہ کریں اور رسید کو محفوظ رکھے گئے۔
- 8 ٹیوٹر امتحانی مشق چیک کرنے کے بعد آپ کو اپس ارسال کر دے گا۔
- 9 اگر ٹیوٹر پندرہ دن بعد اسائنسٹ واپس نہ بھیج تو ٹیوٹر کو کال کر کے اپنے نمبر معلوم کر لیں۔
- 10 اگر امتحانی مشق کے کسی حصے کے نمبر نہیں لگائے گئے یا کل حاصل کردہ نمبروں میں غلطی ہو تو مزید رہنمائی کے لیے اپنے ٹیوٹر یا علاقائی دفتر سے رابطہ کریں۔

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## SEMESTER : AUTUMAN 2019

### ASSIGNMENT NO 2

CODE (6553)

Semester Autuman 2019

Course Name

Textbook Development

Q no 1 EXPLAIN THE NEED OF TRAINING FOR CONTENT DEVELOPMENT OF TEXTBOOK. WHAT KNOWLEDGE AND SKILLS ARE REQUIRED FOR THE TRAINING OF TEXTBOOK DEVELOPMENT?

ANSWER

In the last decade, the use of e-Textbooks has received attention in research and practice. However, the expanded use of e-Textbooks was not easily achieved because of the missing standards in learning content and functionalities, and barriers in utilizing e-Textbooks, such as screen reading and intellectual property protection. This paper provides insights on the design, development, and learning with e-Textbooks by reviewing studies, project reports, and cases on its use. Results reveal the increased promotion and implementation of e-Textbook development in several countries. Criticisms on different e-Textbook types began during the early stages of open multimedia learning resources and digitized textbooks, and continued until the integration of information and communication technologies, authoring tools, and learning platforms. The study examined advantages of e-Textbooks and different factors that influenced e-Textbook applications. The study also reviewed the literature on

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علامہ اقبال اور پنیونیورسٹی کی معلومات کے لیے AIOU Studio 9 یو ٹیوب چینل کو سب سکراہب کریں۔

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learning through e-Textbooks in terms of acceptance and perception of users, and the comparison of the learning effectiveness of this format with printed textbooks. Moreover, learning in e-Textbooks is not fully realized, and requires increased in-depth studies. This paper suggests investigating the pedagogical design of e-Textbooks and further evaluation of e-Textbook functions to support learning. We selected a mixture of empirical studies that focused on the design, development, and learning with e-Textbooks that were conducted around the world during the last decade. Employing databases, such as ScienceDirect, Web of knowledge, EBSCO, SpringerLink, Wiley Online Library, and GoogleScholar, we searched using several keyword combinations including “e-textbook,” “electronic textbooks,” “digital textbook,” “design,” “development,” and “learning.” We utilized the snowball method to select additional articles from the references of the reviewed papers, and ruled out articles that were nonempirical descriptions of e-Textbook projects and opinion papers on this topic. In total, we examined 43 articles that reported empirical findings on the design, development, and learning with e-Textbooks.

In collecting the cases on the use of e-Textbooks, we initiated two rounds during which we called for e-Textbook use cases with the ISO/IEC/JTC 1/SC 36, as part of the study on the key requirements for e-Textbook functionality for Project 18120 (ISO/IEC JTC1/SC36 WG6 2013). These two rounds of calls lasted for approximately one and a half years, with the first round held from September 2010 to August 2011, and the second, from March to September 2011. This period resulted in 55 e-Textbook use cases (ISO/IEC 2010; 2012a). These cases were submitted by the national bodies of ISO/IEC/JTC 1/SC 36, including the UK, Canada, Australia, France, China, Korea, and Kenya, and were received from e-Textbook organizations, such as the International Digital Publishing Forum (IDPF) and Open Educational Resources (OER) programs.

In collecting the project reports, we searched project websites and selected representative projects that presented the current situation in e-Textbook pioneer countries, such as Singapore, Korea, and the UK, from 1999 to present. These reports included completed and ongoing e-Textbook projects, with a focus on the design and development as well as the comprehensive purposes behind e-Textbooks.

Three educational researchers examined 53 empirical studies and conducted content analysis by summarizing major themes of these materials. Five categories could cover almost all topics under investigation. These categories include e-Textbook typology, e-Textbook features and its advantages, user acceptance of e-Textbook, effectiveness of e-Textbook in support of learning, and learning design of e-Textbook. Each category was analyzed to identify the lessons, experiences, and best practices on the design, development, and learning with e-Textbooks. In addition, 18 project reports were analyzed to illustrate the global picture of e-Textbooks. Fifty-five use cases were related to the functional requirements, and were classified into development for further analysis.

Table 1 presents the breakdown of our data. Utilizing the constant comparative method on these articles and cases, we derived the key findings and requirements on e-Textbooks. The following paragraph will present a overview of e-Textbook project from all around the

world, followed with meta-analysis results of studies and cases. The design, development, and the experiment conducted on e-Textbooks are reported in this section. Different types of e-Textbooks, from primitive digitization of learning content to sufficiently utilizing interactive technologies, as well as their development are presented. A review of the experiments on e-Textbooks and a discussion on the learning designs in using e-Textbook follow.

#### How e-Textbooks are produced: types and development

Based on our investigation for the study period report in preparing the e-Textbook standard proposal (ISO/IEC JTC1/SC36 WG6 [2012b](#)), over 30 different e-book formats are available. At least five of these formats are mainstream, namely, TEXT, HTML, CHM, PDF, and EPUB. These are also, currently, the most frequently used formats in developing e-Textbooks.

By examining the collected use cases, three different manifested types of e-Textbooks, including multimedia learning materials and its recent manifestation as applications (APPs), e-books, and open online e-books, such as wiki, were identified. Similarly, e-Textbooks were categorized into web-based, reading software-based, and device-based (Abdullah [2007](#); Vassiliou and Rowley [2008](#); Lee, Messom and Yau [2012](#)).

In its early stage, the e-Textbook was a supplementary multimedia learning resource, rather than as a stand-alone replacement of printed textbooks. This type of e-Textbook was developed with multimedia software or html, and delivered through a website or CD-ROMs (Dennis et al. [2012](#)). For example, in the early stage of e-Textbook development in Korea, e-Textbooks were designed as supplementary materials for printed textbooks (Kim et al. [2010a](#)). Similarly, in China, early versions of e-Textbooks were developed into multimedia learning packages or courseware solutions as supplementary materials of paper textbooks (ISO/IEC JTC1/SC36 WG6 [2012b](#)). This finding is also the case for early e-Textbook projects, such as CeLCAR Projects ([2005](#)), Learn ([2010](#)), and Texas Politics ([2008](#)). Although this approach to e-Textbook catered to learning advantages, the development costs were quite high, and the multimedia materials were difficult to update along with printed textbooks (ISO/IEC JTC1/SC36 WG6 [2013a, b](#)). With the popularization of mobile devices, APPs started to replace multimedia learning packages as the current version of e-Textbooks.

Open online book was another “old-fashioned” approach in developing e-Textbooks based on our collected use cases and the reviewed literature. For example, cases from the OER projects demonstrated that an online open source was regarded as a type of e-Textbook. The use case of “Teacher Generated E-Book” from the UK originated from an open learning content platform, where teachers, education institutions, and national agencies gathered the content to construct an e-book that supported their learners and contributed to the global OER (ISO/IEC JTC1 SC36 WG6 [2013a, b](#)). Similarly, the “Digital Futures Project” developed an open textbook on Digital Literacy in Education, which is an open resource (100,000 words) undertaken as part of the third phase of the HEA/JISC UK OER program. The program involves two universities, regional schools, and the Regional Broadband consortium (ISO/IEC JTC1

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SC36 WG6 2013a, b). Content management systems, such as Wordpress, are commonly used to develop this type of e-Textbook as well.

**Q NO 2 ELABORATE THE IMPORTANCE OF TRAINING FOR UNDERSTANDING THE PROCESS OF TEXTBOOK DESIGNING AND DEVELOPMENT. PRESENT SOME OF THE STRATEGIES FOR DEVELOPMENT OF EFFECTIVE TRAINING MATERIAL?**

**ANSWER**

Training and development describes the formal, ongoing efforts that are made within organizations to improve the performance and self-fulfillment of their employees through a variety of educational methods and programs. In the modern workplace, these efforts have taken on a broad range of applications—from instruction in highly specific job skills to long-term professional development. In recent years, training and development has emerged as a formal business function, an integral element of strategy, and a recognized profession with distinct theories and methodologies. More and more companies of all sizes have embraced "continual learning" and other aspects of training and development as a means of promoting employee growth and acquiring a highly skilled work force. In fact, the quality of employees and the continual improvement of their skills and productivity through training, are now widely recognized as vital factors in ensuring the long-term success and profitability of small businesses. "Create a corporate culture that supports continual learning," counseled Charlene Marmer Solomon in *Workforce*. "Employees today must have access to continual training of all types just to keep up". If you don't actively stride against the momentum of skills deficiency, you lose ground. If your workers stand still, your firm will lose the competency race."

For the most part, the terms "training" and "development" are used together to describe the overall improvement and education of an organization's employees. However, while closely related, there are important differences between the terms that center around the scope of the application. In general, training programs have very specific and quantifiable goals, like

operating a particular piece of machinery, understanding a specific process, or performing certain procedures with great precision. Developmental programs, on the other hand, concentrate on broader skills that are applicable to a wider variety of situations, such as decision making, leadership skills, and goal setting.

#### TRAINING IN SMALL BUSINESSES

Implementation of formal training and development programs offers several potential advantages to small businesses. For example, training helps companies create pools of qualified replacements for employees who may leave or be promoted to positions of greater responsibility. It also helps ensure that companies will have the human resources needed to support business growth and expansion. Furthermore, training can enable a small business to make use of advanced technology and to adapt to a rapidly changing competitive environment. Finally, training can improve employees' efficiency and motivation, leading to gains in both productivity and job satisfaction. According to the U.S. Small Business Administration (SBA), small businesses stand to receive a variety of benefits from effective training and development of employees, including reduced turnover, a decreased need for supervision, increased efficiency, and improved employee morale. All of these benefits are likely to contribute directly to a small business's fundamental financial health and vitality.

Effective training and development begins with the overall strategy and objectives of the small business. The entire training process should be planned in advance with specific company goals in mind. In developing a training strategy, it may be helpful to assess the company's customers and competitors, strengths and weaknesses, and any relevant industry or societal trends. The next step is to use this information to identify where training is needed by the organization as a whole or by individual employees. It may also be helpful to conduct an internal audit to find general areas that might benefit from training, or to

complete a skills inventory to determine the types of skills employees possess and the types they may need in the future. Each different job within the company should be broken down on a task-by-task basis in order to help determine the content of the training program.

The training program should relate not only to the specific needs identified through the company and individual assessments, but also to the overall goals of the company. The objectives of the training should be clearly outlined, specifying what behaviors or skills will be affected and how they relate to the strategic mission of the company. In addition, the objectives should include several intermediate steps or milestones in order to motivate the trainees and allow the company to evaluate their progress. Since training employees is expensive, a small business needs to give careful consideration to the question of which employees to train. This decision should be based on the ability of the employee to learn the material and the likelihood that they will be motivated by the training experience. If the chosen employees fail to benefit from the training program or leave the company soon after receiving training, the small business has wasted its limited training funds.

The design of training programs is the core activity of the training and development function. In recent years, the development of training programs has evolved into a profession that utilizes systematic models, methods, and processes of instructional systems design (ISD). ISD describes the systematic design and development of instructional methods and materials to facilitate the process of training and development and ensure that training programs are necessary, valid, and effective. The instructional design process includes the collection of data on the tasks or skills to be learned or improved, the analysis of these skills and tasks, the development of methods and materials, delivery of the program, and finally the evaluation of the training's effectiveness.

Small businesses tend to use two general types of training methods, on-the-job techniques and off-the-job techniques. On-the-job training describes a variety of methods that are applied while employees are actually performing their jobs. These methods might include orientations, coaching, apprenticeships, internships, job instruction training, and job rotation. The main advantages of on-the-job techniques is that they are highly practical, and employees do not lose working time while they are learning. Off-the-job training, on the other hand, describes a number of training methods that are delivered to employees outside of the regular work environment, though often during working hours. These techniques might include lectures, conferences, case studies, role playing, simulations, film or television presentations, programmed instruction, or special study.

On-the-job training tends to be the responsibility of supervisors, human resources professionals, or more experienced co-workers. Consequently, it is important for small businesses to educate their seasoned employees in training techniques. In contrast, off-the-job tends to be handled by outside instructors or sources, such as consultants, chambers of commerce, technical and vocational schools, or continuing education programs. Although outside sources are usually better informed as to effective training techniques than company supervisors, they may have a limited knowledge of the company's products and competitive situation. Another drawback to off-the-job training programs is their cost. These programs can run into the multi thousand dollar per participant level, a cost that may make them prohibitive for many small businesses.

Actual administration of the training program involves choosing an appropriate location, providing necessary equipment, and arranging a convenient time. Such operational details, while seemingly minor components of an overall training effort, can have a significant effect on the success of a program. In addition, the training program should be evaluated at regular

intervals while it is going on. Employees' skills should be compared to the predetermined goals or milestones of the training program, and any necessary adjustments should be made immediately. This ongoing evaluation process will help ensure that the training program successfully meets its expectations.

#### COMMON TRAINING METHODS

While new techniques are under continuous development, several common training methods have proven highly effective. Good continuous learning and development initiatives often feature a combination of several different methods that, blended together, produce one effective training program.

##### Orientations

Orientation training is vital in ensuring the success of new employees. Whether the training is conducted through an employee handbook, a lecture, or a one-on-one meeting with a supervisor, newcomers should receive information on the company's history and strategic position, the key people in authority at the company, the structure of their department and how it contributes to the mission of the company, and the company's employment policies, rules, and regulations.

##### Lectures

A verbal method of presenting information, lectures are particularly useful in situations when the goal is to impart the same information to a large number of people at one time. Since they eliminate the need for individual training, lectures are among the most cost-effective training methods. But the lecture method does have some drawbacks. Since lectures primarily involve one-way communication, they may not provide the most interesting or effective training. In addition, it may be difficult for the trainer to gauge the level of understanding of the material within a large group.

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## Case Study

The case method is a non-directed method of study whereby students are provided with practical case reports to analyze. The case report includes a thorough description of a simulated or real-life situation. By analyzing the problems presented in the case report and developing possible solutions, students can be encouraged to think independently as opposed to relying upon the direction of an instructor. Independent case analysis can be supplemented with open discussion with a group. The main benefit of the case method is its use of real-life situations. The multiplicity of problems and possible solutions provide the student with a practical learning experience rather than a collection of abstract knowledge and theories that may be difficult to apply to practical situations.

## **Role Playing**

In role playing, students assume a role outside of themselves and play out that role within a group. A facilitator creates a scenario that is to be acted out by the participants under the guidance of the facilitator. While the situation might be contrived, the interpersonal relations are genuine. Furthermore, participants receive immediate feedback from the facilitator and the scenario itself, allowing better understanding of their own behavior. This training method is cost effective and is often applied to marketing and management training.

## Simulations

Games and simulations are structured competitions and operational models that emulate real-life scenarios. The benefits of games and simulations include the improvement of problem-solving and decision-making skills, a greater understanding of the organizational whole, the ability to study actual problems, and the power to capture the student's interest.

### Computer-Based Training

Computer-based training (CBT) involves the use of computers and computer-based instructional materials as the primary medium of instruction. Computer-based training programs are designed to structure and present instructional materials and to facilitate the learning process for the student. A main benefit of CBT is that it allows employees to learn at their own pace, during convenient times. Primary uses of CBT include instruction in computer hardware, software, and operational equipment. The last is of particular importance because CBT can provide the student with a simulated experience of operating a particular piece of equipment or machinery while eliminating the risk of damage to costly equipment by a trainee or even a novice user. At the same time, the actual equipment's operational use is maximized because it need not be utilized as a training tool. The use of computer-based training enables a small business to reduce training costs while improving the effectiveness of the training. Costs are reduced through a reduction in travel, training time, downtime for operational hardware, equipment damage, and instructors. Effectiveness is improved through standardization and individualization.

Web-based training (WBT) is an increasingly popular form of CBT. The greatly expanding number of organizations with Internet access through high-speed connections has made this form of CBT possible. By providing the training material on a Web page that is accessible through any Internet browser, CBT is within reach of any company with access to the Web. The terms "online courses" and "web-based instruction" are sometimes used interchangeably with WBT.

### Self-Instruction

Self-instruction describes a training method in which the students assume primary responsibility for their own learning. Unlike instructor- or facilitator-led instruction, students

retain a greater degree of control regarding topics, the sequence of learning, and the pace of learning. Depending on the structure of the instructional materials, students can achieve a higher degree of customized learning. Forms of self-instruction include programmed learning, individualized instruction, personalized systems of instruction, learner-controlled instruction, and correspondence study. Benefits include a strong support system, immediate feedback, and systematization.

#### Audiovisual Training

Audiovisual training methods include television, films, and videotapes. Like case studies, role playing, and simulations, they can be used to expose employees to "real world" situations in a time-and cost-effective manner. The main drawback of audiovisual training methods is that they cannot be customized for a particular audience, and they do not allow participants to ask questions or interact during the presentation of material.

#### Team-Building Exercises

Team building is the active creation and maintenance of effective work groups with similar goals and objectives. Not to be confused with the informal, ad-hoc formation and use of teams in the workplace, team building is a formal process of building work teams and formulating their objectives and goals, usually facilitated by a third-party consultant. Team building is commonly initiated to combat poor group dynamics, labor-management relations, quality, or productivity. By recognizing the problems and difficulties associated with the creation and development of work teams, team building provides a structured, guided process whose benefits include a greater ability to manage complex projects and processes, flexibility to respond to changing situations, and greater motivation among team members.

Team building may include a broad range of different training methods, from outdoor immersion exercises to brainstorming sessions. The main drawback to formal team building is

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the cost of using outside experts and taking a group of people away from their work during the training program.

## **Apprenticeships and Internships**

Apprenticeships are a form of on-the-job training in which the trainee works with a more experienced employee for a period of time, learning a group of related skills that will eventually qualify the trainee to perform a new job or function. Apprenticeships are often used in production-oriented positions. Internships are a form of apprenticeship that combines on-the-job training under a more experienced employee with classroom learning.

## **Job Rotation**

Another type of experience-based training is job rotation, in which employees move through a series of jobs in order to gain a broad understanding of the requirements of each. Job rotation may be particularly useful in small businesses, which may feature less role specialization than is typically seen in larger organizations.

## APPLICATIONS OF TRAINING PROGRAMS

While the applications of training and development are as various as the functions and skills required by an organization, several common training applications can be distinguished, including technical training, sales training, clerical training, computer training, communications training, organizational development, career development, supervisory development, and management development.

**Technical training** describes a broad range of training programs varying greatly in application and difficulty. Technical training utilizes common training methods for instruction of technical concepts, factual information, and procedures, as well as technical processes and principles.

Sales training concentrates on the education and training of individuals to communicate with customers in a persuasive manner. Sales training can enhance the employee's knowledge of the organization's products, improve his or her selling skills, instill positive attitudes, and increase the employee's self-confidence. Employees are taught to distinguish the needs and wants of the customer, and to persuasively communicate the message that the company's products or services can effectively satisfy them.

Clerical training concentrates on the training of clerical and administrative support staffs, which have taken on an expanded role in recent years. With the increasing reliance on computers and computer applications, clerical training must be careful to distinguish basic skills from the ever-changing computer applications used to support these skills. Clerical training increasingly must instill improved decision-making skills in these employees as they take on expanded roles and responsibilities.

Computer training teaches the effective use of the computer and its software applications, and often must address the basic fear of technology that most employees face and identify and minimize any resistance to change that might emerge. Furthermore, computer training must anticipate and overcome the long and steep learning curves that many employees will experience. To do so, such training is usually offered in longer, uninterrupted modules to allow for greater concentration, and structured training is supplemented by hands-on practice. This area of training is commonly cited as vital to the fortunes of most companies, large and small, operating in today's technologically advanced economy.

Communications training concentrates on the improvement of interpersonal communication skills, including writing, oral presentation, listening, and reading. In order to be successful, any form of communications training should be focused on the basic improvement of skills and not just on stylistic considerations. Furthermore, the training should serve to build on

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present skills rather than rebuilding from the ground up. Communications training can be taught separately or can be effectively integrated into other types of training, since it is fundamentally related to other disciplines.

Organizational development (OD) refers to the use of knowledge and techniques from the behavioral sciences to analyze an existing organizational structure and implement changes in order to improve organizational effectiveness. OD is useful in such varied areas as the alignment of employee goals with those of the organization, communications, team functioning, and decision making. In short, it is a development process with an organizational focus to achieve the same goals as other training and development activities aimed at individuals. OD practitioners commonly practice what has been termed "action research" to effect an orderly change which has been carefully planned to minimize the occurrence of unpredicted or unforeseen events. Action research refers to a systematic analysis of an organization to acquire a better understanding of the nature of problems and forces within it.

**Q NO 3 HIGHLIGHT THE SCOPE OF DIGITAL AND E-BOOK IN 21ST CENTURY . COMPARE THE PROS AND CONS OF TRADITIONAL AND ELECTRONIC TEXTBOOK?**

**ANSWER**

An electronic book, also known as an e-book or eBook, is a **book** publication made available in **digital** form, consisting of text, images, or both, readable on the **flat-panel display** of computers or other electronic devices.<sup>[1]</sup> Although sometimes defined as "an electronic version of a printed book",<sup>[2]</sup> some e-books exist without a printed equivalent. E-books can be read on dedicated **e-reader** devices, but also on any computer device that features a controllable viewing screen, including **desktop computers, laptops, tablets and smartphones**.

In the 2000s, there was a trend of print and e-book sales moving to the **Internet**,<sup>[citation needed]</sup> where readers buy traditional paper books and e-books on **websites** using **e-commerce** systems. With print books, readers are increasingly browsing through **images** of the covers of books on publisher or bookstore websites and selecting and ordering titles online; the paper books are then delivered to the reader by mail or another delivery service. With e-books, users can browse through titles online, and then when they select and order titles, the e-book can be sent to them online or the user can download the e-book.<sup>[3]</sup> By the

early 2010s, e-books had begun to overtake hardcover by overall publication figures in the U.S.<sup>[4]</sup>

The main reasons for people buying e-books are possibly lower prices, increased comfort (as they can buy from home or on the go with mobile devices) and a larger selection of titles.<sup>[5]</sup> With e-books, "[e]lectronic bookmarks make referencing easier, and e-book readers may allow the user to annotate pages."<sup>[6]</sup> "Although fiction and non-fiction books come in e-book formats, technical material is especially suited for e-book delivery because it can be [electronically] searched" for keywords. In addition, for programming books, code examples can be copied.<sup>[6]</sup> The amount of e-book reading is increasing in the U.S.; by 2014, 28% of adults had read an e-book, compared to 23% in 2013. This is increasing, because by 2014 50% of American adults had an e-reader or a tablet, compared to 30% owning such devices in 2013. E-books are also referred to as "ebooks", "eBooks", "Ebooks", "e-Books", "e-journals", "e-editions", or "digital books". A device that is designed specifically for reading e-books is called an "e-reader", "ebook device", or "eReader". Some trace the concept of an e-reader, a device that would enable the user to view books on a screen, to a 1930 manifesto by Bob Brown, written after watching his first "talkie" (movie with sound). He titled it *The Readies*, playing off the idea of the "talkie".<sup>[8]</sup> In his book, Brown says movies have outmaneuvered the book by creating the "talkies" and, as a result, reading should find a new medium:

A simple reading machine which I can carry or move around, attach to any old electric light plug and read hundred-thousand-word novels in 10 minutes if I want to, and I want to.

Brown's notion, however, was much more focused on reforming orthography and vocabulary, than on medium ("It is time to pull out the stopper" and begin "a bloody revolution of the word."): introducing huge numbers of portmanteau symbols to replace normal words, and punctuation to simulate action or movement; so it is not clear whether this fits into the history of "e-books" or not. Later e-readers never followed a model at all like Brown's; however, he correctly predicted the miniaturization and portability of e-readers. In an article, Jennifer Schuessler writes, "The machine, Brown argued, would allow readers to adjust the type size, avoid paper cuts and save trees, all while hastening the day when words could be 'recorded directly on the palpitating ether'.<sup>[9]</sup> Brown believed that the e-reader (and his notions for changing text itself) would bring a completely new life to reading. Schuessler correlates it with a DJ spinning bits of old songs to create a beat or an entirely new song, as opposed to just a remix of a familiar song.

#### Q NO 4 WHAT ARE THE BASIC ASPECTS OF TECHNICAL EDITING. WHY THE EDITORIAL JOB IS CONSIDERED POTENTIALLY RESPONSIBLE FOR THE QUALITY OF TEXTBOOK PRODUCTION?

#### ANSWER

Editors of scientific journals have responsibilities toward the authors who provide the content of the journals, the peer reviewers who comment on the suitability of manuscripts for publication, the journal's readers and the scientific community, the owners/publishers of the journals, and the public as a whole. Depending upon the

relationship between the editor and publisher for particular journals, some of the roles and responsibilities between the two may overlap in some of the following:

#### Editor Responsibilities toward Authors

- Providing guidelines to authors for preparing and submitting manuscripts
- Providing a clear statement of the Journal's policies on authorship criteria
- Treating all authors with fairness, courtesy, objectivity, honesty, and transparency
- Establishing and defining policies on conflicts of interest for *all* involved in the publication process, including editors, staff (e.g., editorial and sales), authors, and reviewers
- Protecting the confidentiality of every author's work
- Establishing a system for effective and rapid peer review (see section 2.3)
- Making editorial decisions with reasonable speed and communicating them in a clear and constructive manner
- Being vigilant in avoiding the possibility of editors and/or referees delaying a manuscript for suspect reasons
- Establishing clear guidelines for authors regarding acceptable practices for sharing experimental materials and information, particularly those required to replicate the research, before and after publication
- Establishing a procedure for reconsidering editorial decisions (see section 2.1.9)
- Describing, implementing, and regularly reviewing policies for handling ethical issues and allegations or findings of misconduct by authors and anyone involved in the peer review process (see sections 2.1.10 and 3.0)
- Informing authors of solicited manuscripts that the submission will be evaluated according to the journal's standard procedures or outlining the decision-making process if it differs from those procedures
- Developing mechanisms, in cooperation with the publisher, to ensure timely publication of accepted manuscripts (see section 2.1.6)
- Clearly communicating all other editorial policies and standards

The following are examples of editorial policies and standards that editors may require of submitting authors:

- State all sources of funding for research and include this information in the acknowledgment section of the submitted manuscript.
- State in the manuscript, if appropriate, that the research protocol employed was approved by the relevant institutional review boards or ethics committees for human (including human cells or tissues) or animal experiments and that all human subjects provided appropriate informed consent.
- Describe in the manuscript methods section how cultured cell lines were authenticated.
- State in the manuscript, if appropriate, that regulations concerning the use of animals in research, teaching, and testing were adhered to. Governments, institutions, and professional organizations have statements about the use of

- animals in research. For examples, see the statements from the Federation of American Societies for Experimental Biology,<sup>1</sup> the Canadian Council on Animal Care,<sup>2</sup> and, for links to other informational sites, the University of California, San Francisco.<sup>3</sup>
- When race/ethnicity is reported, define who determined race/ethnicity, whether the options were defined by the investigator and, if so, what they were and why race/ethnicity is considered important in the study.
  - List contributors who meet the journal's criteria for authorship as authors and identify other support (e.g., statistical analysis or writers), with the contributor's approval, in the acknowledgment section. Some journals may require and publish a statement of author contribution for each article. In addition, some journals have a requirement for original research (sometimes called a guarantor policy) that at least one author who had full access to all the data takes responsibility for its integrity and the accuracy of the data analysis. *JAMA* publishes these statements in the acknowledgment section. A description can be found in the *JAMA Instructions for Authors*.<sup>4</sup>
  - Reveal any potential conflicts of interest of each author either in the cover letter, manuscript, or disclosure form,<sup>a</sup> in accordance with the journal's policy.
  - Include (usually written) permission from each individual identified as a source of personal communication or unpublished data.
  - Describe and provide copies of any similar works in process.
  - Provide copies of cited manuscripts that are submitted or in press.
  - Supply supporting manuscript data (e.g., actual data that were summarized in the manuscript) to the editor when requested or indicate where (site) the data can be found.
  - Share data or materials needed by other scientists to replicate the experiment. As an example, the Information for Authors of the *Proceedings of the National Academy of Sciences (PNAS)*<sup>b</sup> state: "To allow others to replicate and build on work published in PNAS, authors must make materials, data, and associated protocols available to readers. Authors must disclose upon submission of the manuscript any restrictions on the availability of materials or information."
  - Cite and reference other relevant published work on which the submitted work is based.
  - Obtain permission from the copyright owner to use/reproduce copyrighted content (e.g., figures and tables) in the submitted manuscript, if applicable.<sup>c</sup>
  - Provide written permission from any potentially identifiable individuals referred to or shown in photographs in the manuscript.
  - Copyright transfer statement <sup>d</sup> or licensing agreement.<sup>e</sup>

Peer review by external referees with the proper expertise is the most common method to ensure manuscript quality. However, editors or associate editors may sometimes reject manuscripts without external peer review to make the best use of their resources. Reasons for this practice are usually that the manuscript is outside the scope of the journal, does not meet the journal's quality standards or is of limited scientific merit, or lacks originality or novel information.

Referees are chosen by the editors or by associate editors or members of the editorial board to whom the task has been delegated. The amount of anonymity in the peer-review process varies. Some journals attempt to mask the identities of both the authors and reviewers (double masked or double blind); however, although masked, the identity of the author(s) may be known by the reviewers based on the area of research. Many journals follow the practice of keeping reviewer identities anonymous to the authors (single masked or single blind). Alternatively, some journals give reviewers the option to reveal their names, and a few journals provide authors with the names of all reviewers associated with the manuscript.

Peer review is usually a gift of uncompensated time from scientists to whom time is a precious commodity. Therefore, it is important for editors to clearly define the responsibilities of these individuals and to implement processes that streamline the peer review process as much as possible (see section 2.3 for more on reviewer responsibilities).

#### Editor Responsibilities toward Reviewers

- Assigning papers for review appropriate to each reviewer's area of interest and expertise
- Establishing a process for reviewers to ensure that they treat the manuscript as a confidential document and complete the review promptly
- Informing reviewers that they are not allowed to make any use of the work described in the manuscript or to take advantage of the knowledge they gained by reviewing it before publication
- Providing reviewers with written, explicit instructions on the journal's expectations for the scope, content, quality, and timeliness of their reviews to promote thoughtful, fair, constructive, and informative critique of the submitted work
- Requesting that reviewers identify any potential conflicts of interest and asking that they recuse themselves if they cannot provide an unbiased review
- Allowing reviewers appropriate time to complete their reviews
- Requesting reviews at a reasonable frequency that does not overtax anyone reviewer
- Finding ways to recognize the contributions of reviewers, for example, by publicly thanking them in the journal; providing letters that might be used in applications for academic promotion; offering professional education credits; or inviting them to serve on the editorial board of the journal

Editors have the responsibility to inform and educate readers. Making clear and rational editorial decisions will ensure the best selection of content that contributes to the body of scientific knowledge.

## **Editor Responsibilities toward Readers and the Scientific Community**

- Evaluating all manuscripts considered for publication to make certain that each provides the evidence readers need to evaluate the authors' conclusions and that authors' conclusions reflect the evidence provided in the manuscript
  - Providing literature references and author contact information so interested readers may pursue further discourse
  - Identifying individual and group authorship clearly and developing processes to ensure that authorship criteria are met to the best of the editor's knowledge
  - Requiring all authors to review and accept responsibility for the content of the final draft of each paper or for those areas to which they have contributed; this may involve signatures of all authors or of only the corresponding author on behalf of all authors. Some journals ask that one author be the guarantor and take responsibility for the work as a whole
  - Maintaining the journal's internal integrity (e.g., correcting errors; clearly identifying and differentiating types of content, such as reports of original data, opinion pieces [e.g., editorials and letters to the editor], corrections/errata, retractions, supplemental data, and promotional material or advertising; and identifying published material with proper references)
  - Ensuring that all involved in the publication process understand that it is inappropriate to manipulate citations by, for example, demanding that authors cite papers in the journal<sup>13 14</sup>
  - Disclosing sources (e.g., authorship, journal ownership, and funding)
  - Creating mechanisms to determine if the journal is providing what readers need and want (e.g., reader surveys)
  - Disclosing all relevant potential conflicts of interest of those involved in considering a manuscript or affirming that none exist.<sup>15 16</sup> Sample correspondence related to this topic is available on the CSE website.<sup>17</sup>
  - Providing a mechanism for a further discussion on the scientific merits of a paper, such as by publishing letters to the editor, inviting commentaries, article blogs, or soliciting other forms of public discourse
  - Explicitly stating journal policies regarding ethics, embargo, submission and publication fees, and accessibility of content (freely available versus subscriber only)
  - Working with the publisher to attract the best manuscripts and research that will be of interest to readers
  - In some instances, a publisher may put pressure on an editor to publish a review or article in an effort to increase reprint sales. The editor has a responsibility to readers and the scientific community to resist such pressure<sup>18</sup>

### *Journal Ownership*

Journals are typically owned by professional societies or associations, foundations, universities, hospitals, research institutions, libraries, governmental organizations, non-profit organizations, or commercial publishers.

#### Editor Responsibilities toward Journal Owners/Publishers

- Conducting peer review of submitted manuscripts
- Complying with the guidelines and procedures of the owner organization, including any terms specified in the contract with that organization
- Making recommendations about improved evaluation and dissemination of scientific material
- Adhering to the owner's and publisher's fiscal policies towards the Journal, at least in so much as they do not encroach upon editorial independence
- Adhering to the agreed-upon mission, publication practices, and schedule

Meeting all obligations, which sometimes compete against one another, and handling the demands of other individuals and groups (such as the parent society, owners, publishers, funders and sponsors, authors, readers, advertisers, news media, and government agencies) require that the editors have editorial freedom, comprising both authority and autonomy. It should be recognized that this is a difficult challenge and, therefore, editors should not hesitate to consult peers and/or organizations, such as the CSE, should concerns or uncertainties arise.

#### Responsibilities of Editors toward the Public

Many responsibilities of editors toward the public are carried out through the mechanisms established for the processes and constituencies mentioned above. Editors' roles have benefited society in many ways, from the quality-control measures taken when considering manuscripts for publication to requiring authors to abide by standards that would advance science and deposit information into freely available public databases as a condition of publication (e.g., data sharing). Editors are regularly taking steps to see that the outcomes of the scientific enterprise benefit the public. This includes identifying dual use research, which is research that can be misused to harm the public or its well-being.

#### Dual Use Research

One additional area that has emerged with advances in science, technology, and global exchange of information is consideration of "dual use research." This is research with a legitimate scientific purpose that may be misused to pose a threat to public health and/or national security. As defined by the United States National Science Advisory Board for Biosecurity (NSABB), dual use research of concern (DURC) is a subset of dual use research "that, based on current understanding, can be reasonably anticipated to provide knowledge, products, or technologies that could be directly misappropriated by others to pose a threat to public health and safety, agriculture, plants, animals, the environment, and material."<sup>19</sup> Examples include knowledge, products, or technologies that could be misappropriated to create or enhance harmful consequences of biological agents or toxins, disrupt immunity of vaccines, increase transmission of harmful substances, or alter biological agents and toxins to make

them resistant to clinical or agricultural prophylactic or therapeutic interventions, or conversely to enhance the susceptibility of a host population to harm. Everyone has a stake in the responsible management of DURC, but especially individual researchers, institutions and institutional groups (e.g., institutional biosafety committees), funding agencies, scientific societies, government/regulatory bodies, journal editors, and the global scientific community. In the United States, the National Policy on the Transfer of Scientific, Technical, and Engineering Information, issued in 1985 (National Security Decision Directive-189),<sup>20</sup> states that, to the maximum extent possible, federally funded fundamental research that is unclassified will not have government-imposed restrictions on its conduct or reporting. More recent legislation, such as the USA PATRIOT Act of 2001 (P.L. 107 -56)<sup>21</sup> and the Public Health Security and Bioterrorism Preparedness and Response Act of 2002 (P.L. 107 - 188, H.R. 3448), takes additional steps intended to prevent bioterrorism, including the establishment of a national database of potentially dangerous pathogens and imposition of safety and security requirements on facilities and individuals with access to them.

Identification and consideration of DURC throughout the research continuum before submission of manuscripts for publication is an important early step. However, while journal editors do not have sole responsibility for the management of DURC, inevitably, editors will be faced with submissions that could be considered DURC and the challenges that come with handling them. Considering the risks and benefits of publishing DURC is a task in which many editors have no experience. Identifying DURC is subjective, and it is difficult for even the most knowledgeable editors and scientists to manage submissions that provide legitimate scientific contributions without censoring their communication because of potential harmful use.

In 2003, the “Statement on Scientific Publication and Security”<sup>22</sup> was published by a group of editors simultaneously in *Science*, *Proceedings of the National Academy of Sciences*, *Nature*, and the American Society for Microbiology journals. This statement recognizes the challenge of dual use research and documents the commitment of journal editors and authors toward responsibly and effectively balancing the need for public safety with the requirements of transparently reporting scientific results.

There may be times when it is appropriate to “encourage investigators to communicate results of research in ways that maximize public benefits and minimize risks of misuse.” In rare cases, some information needed to reproduce the experiment should be eliminated or the manuscript itself should not be published. Editors who may potentially receive DURC submissions should consider establishing best practices for processing these manuscripts.

The NSABB and organizations around the world have entered into dialogues with all stakeholders to find ways to ensure that science continues to be done and communicated in an unfettered way, while being mindful of and minimizing the risks and consequences of misuse. Tools and information on this topic are being built and shared by the global community.

Editors can educate journal boards, reviewers, and authors; establish screening methods to recognize DURC; obtain reviews of these manuscripts from individuals with technical and security expertise; and create an ongoing network to share experiences and further refine ways for managing DURC.

Editors should develop guidelines and procedures to allow the scientific evaluation as well as the evaluation of the possible risk of communicating information with dual use potential. Additional information on what to consider when evaluating a manuscript with potential dual use can be found in the report titled, Biotechnology Research in an Age of Terrorism.<sup>23</sup>

#### 2.1.1 Editorial Freedom

An editor essentially is responsible for what appears in his or her journal. To establish and maintain high-quality journal content, an editor should, prior to accepting a position, receive an explicit written statement from the journal's owner that defines the editor's responsibilities and autonomy. Regardless of the scientific field, editors should be given full responsibility for editorial decisions on individual manuscripts (see section 2.5). The editor's right to editorial freedom may be supported by the following and should be agreed on by both the editor and the journal owner/publisher:

- A journal mission statement
- Written editorial priorities, objectives, and measures of success
- Written editorial policies
- A written job description, specifically detailing components of editorial freedom, including the degree of control regarding editorial content, acceptance and publication, and advertising content (a sample job description can be found in the Appendix to this section)
- An editorial board, including associate, assistant, and topic editors, that is nominated or appointed by and reports to the editor
- Sufficient support from the parent society, publisher, owner, or other journal sponsors in both funding and staff to carry out the journal's stated mission
- A mechanism for regular and objective evaluation of editor performance by the publisher or sponsoring organization based on predetermined and agreed-upon measures of success
- Direct lines of communication with the publisher, owner, and any publication oversight body
- A mechanism to prevent inappropriate influence on the editor by others and to handle conflicts in an objective and transparent manner with the goal of conflict resolution and maintenance of trust

Much of the above may be laid out in a contract. The terms of the contract should specify the duration of the editor's appointment and the grounds for termination, from both sides.

### 2.1.2 Confidentiality

Editors and the publication staff should keep all information about a submitted manuscript confidential, sharing it only with those involved in the evaluation, review, and publication processes.

Editors should consider adding a confidentiality notice to *all* correspondence, including reviewer forms, to serve as a reminder to authors, editors, and reviewers. To minimize the potential to influence editorial decisions, many journals have policies not to release content to the publication's sales team until it has been accepted or published.

Journals should have a mechanism – consistent with established industry standards – to safely store, archive, and/or destroy paper and electronic manuscript review files and related content. Records and retention schedules, such as how long to keep published manuscripts and associated correspondence or rejected manuscripts and associated correspondence, should be documented in writing and reviewed on a regular basis.

Journals may receive subpoenas for information about manuscripts. Legal counsel is advised in this scenario. Formal subpoenas can be issued only by a regulatory agency or court of competent jurisdiction. Formal inquiries from law firms, for example, are probably best to politely decline, citing confidentiality. Generally, editors should resist revealing confidential information when served a subpoena unless advised to do so by legal counsel. Not only is the requested information usually confidential, but often uncovering ALL information (for which lawyers are trained to ask) can be time-consuming, interrupt normal business, and be expensive. Citing, for example, the Avoidance of Undue Burden or Expense Under Rule 45(c)(1) of the Federal Rules of Civil Procedure may be useful.<sup>24</sup>

Confidential information should not be used for an editor's own purposes, and editors should take reasonable steps to ensure that such information is not used inappropriately for the advantage of others. In cases of breach of confidentiality by those involved in the peer-review process, editors should contact the involved parties and follow up on such cases until they are satisfactorily resolved.

Generally, editors of journals with embargo policies should enforce them to encourage the confidentiality of publication content until the embargo release date, unless the editor is authorized by the copyright owner or required by law to disclose the information. The copyright owner is often the journal owner—usually the society or publisher—but may be the author. There are 2 general exceptions under which an editor may release manuscript content to others not involved in consideration of the manuscript prior to publication: (1) to an author if a commentary or editorial is being solicited to highlight the manuscript and (2) to the public when research findings have a major health or societal impact (a rare event). In the latter case, journals often

prefer to coordinate release of the peer-reviewed study findings with announcements to the public so that details are clearly presented and widely disseminated. This type of content is often made freely available online prior to print. A good summary of the importance of releasing information to the public and honoring embargoes is described in a *JAMA* editorial<sup>25</sup> (see section 2.6).

#### 2.1.3 Conflicts of Interest

Conflicts of interest in publishing can be defined as conditions in which an individual holds conflicting or competing interests that could bias editorial decisions. Conflicts of interest may be only potential or perceived, or they may be factual. Personal, political, financial, academic, or religious considerations can affect objectivity in numerous ways.

Editors should set and regularly monitor a conflict of interest policy for editors, reviewers, editorial board members, editorial staff, and authors.<sup>15-16</sup> Sample correspondence related to this topic is available on the CSE website.<sup>17</sup> These policies should be published in the journal with the date of their adoption or publication and made easily accessible to all readers by a parallel online publication (usually as part of the Instructions for Authors). Editors should strive for fairness and impartiality in their policies. This can only be achieved if all parties involved in the peer -review process disclose any and all conflicts and allow the Editor to decide how they should be handled. It is also important to recognize that an Editor and/or reviewer can be impartial while nonetheless being in conflict of interest. Since the perception of conflict of interest is detrimental to a journal's reputation, avoiding even the perception of conflict of interest should be a priority. Enforcement of these policies must also be considered. practices to deal with premeditated or inadvertent breaches of the journal's conflict of interest policy should be stated in writing, regularly reviewed, and carried out consistently.

One challenge for editors is to recognize the potential for biases arising from conflicts of interest in the publishing process and to take appropriate action when biases are likely. Some specific types of conflict of interest are mentioned below.

- *Personal conflicts.* Editors should avoid making decisions on manuscripts that conflict with their own interest, such as those submitted from their department or by research collaborators, co-authors (in the case of collaborators or co-authors, some time period should be established, such as "for the past five years"), competitors, or those addressing an issue in which they stand to gain financially (e.g., stock in a company whose product is discussed in the article). If they may have a perceived or actual conflict of interest, editors should delegate handling of any decision to other editors with decision-making responsibility. Also, editors should submit their own manuscripts to the journal only if full masking of the process can be ensured (e.g., anonymity of the peer reviewers and lack of access to records of their own manuscript). Journals should have a procedure in place to guide the handling of submissions by editors, associate editors, editorial board

members, and colleagues/students of any of these to allow for peer review and decision making that avoids any conflict of interest. Editorials and/or opinion pieces are an exception to this rule.

- *Financial conflicts.* The most evident type of potential conflict of financial interest arises when an individual or organization may benefit financially from a decision to publish or to reject a manuscript. Financial conflicts may include salary, grants from a company with an interest in the results, honoraria, stock or equity interests, and intellectual property rights (patents, royalties, and copyrights). Some examples of potential direct and indirect financial conflicts of interest that should be avoided are given below.

Direct: An editor, author, or reviewer is reporting or considering a study involving a specific commercial product while he or she holds equity positions or stock options in the company making the product and thus has the potential to realize direct financial gain if the assessment is favorable.  
Direct: A reviewer gains key knowledge by evaluating a competing research team's work and uses it prior to the publication of the work but does not cite it in his/her own patent application.

Indirect: An individual involved in the publication process is employed by an organization that would obtain some advantage from a favorable product-related publication or may receive compensation if a product does well as a result of a favorable report published in the journal. Similarly, an author of an editorial commenting on the importance of a research article may minimize positive findings if he or she has been a consultant to a company selling competing products.

**Q NO 5 HIGHLIGHT THE DEVELOPMENT FEATURES OF TEXTBOOK EVOLUTION PROCESS.  
DESCRIBE THE FUTURE OF TEXTBOOK AND THE NEED OF OPEN AND DIGITAL TEXTBOOK IN CURRENT ERA?**

**ANSWER**

A textbook is a comprehensive compilation of content in a branch of study. Textbooks are produced to meet the needs of educators, usually at educational institutions. Schoolbooks are textbooks and other books used in schools.<sup>[1][2]</sup> Today, many textbooks are published in both print format and digital formats. The history of textbooks dates back to ancient civilizations. For example, Ancient Greeks wrote educational texts. The modern textbook has its roots in the mass production made possible by the printing press. Johannes Gutenberg himself may have printed editions of *Ars Minor*, a schoolbook on Latin grammar by Aelius Donatus. Early textbooks were used by tutors and teachers (e.g. alphabet books), as well as by individuals who taught themselves.

The Greek philosopher Plato lamented the loss of knowledge because the media of transmission were changing.<sup>[3]</sup> Before the invention of the Greek alphabet 2,500 years ago,

knowledge and stories were recited aloud, much like Homer's epic poems. The new technology of writing meant stories no longer needed to be memorized, a development Socrates feared would weaken the Greeks' mental capacities for memorizing and retelling. (Ironically, we know about Socrates' concerns only because they were written down by his student Plato in his famous Dialogues.) [4]

The next revolution in the field of books came with the 15th-century invention of printing with changeable type. The invention is attributed to German metalsmith Johannes Gutenberg, who cast type in molds using a melted metal alloy and constructed a wooden-screw printing press to transfer the image onto paper.

Gutenberg's first and only large-scale printing effort was the now iconic Gutenberg Bible in the 1450s — a Latin translation from the Hebrew Old Testament and the Greek New Testament. Gutenberg's invention made mass production of texts possible for the first time. Although the Gutenberg Bible itself was expensive, printed books began to spread widely over European trade routes during the next 50 years, and by the 16th century, printed books had become more widely accessible and less costly. [5]

While many textbooks were already in use, compulsory education and the resulting growth of schooling in Europe led to the printing of many more textbooks for children. Textbooks have been the primary teaching instrument for most children since the 19th century. Two textbooks of historical significance in United States schooling were the 18th century New England Primer and the 19th century McGuffey Readers.

Recent technological advances have changed the way people interact with textbooks. Online and digital materials are making it increasingly easy for students to access materials other than the traditional print textbook. Students now have access to electronic books ("e-books"), online tutoring systems and video lectures. An example of an e-book is *Principles of Biology* from Nature Publishing.

Most notably, an increasing number of authors are avoiding commercial publishers and instead offering their textbooks under a creative commons or other open license. As in many industries, the number of providers has declined in recent years (there are just a handful of major textbook companies in the USA). [6] Also, elasticity of demand is fairly low. The term "broken market" appeared in the economist James Koch's analysis of the market commissioned by the Advisory Committee on Student Financial Assistance. [7]

The market for textbooks doesn't reflect classic supply and demand because of agency problems. Some students save money by buying used copies of textbooks, which tend to be less expensive, and are available from many college bookstores in the US, who buy them back from students at the end of a term. Books that are not being re-used at the school are often purchased by an off-campus wholesaler for 0-30% of the new cost, for distribution to other bookstores. Some textbook companies have countered this by encouraging teachers to assign homework that must be done on the publisher's website. Students with a new textbook can use the pass code in the book to register on the site; otherwise they must pay the publisher to access the website and complete assigned homework.

تمام کلاس کی حل شدہ ASSIGNMENTS کے لیے رابط کریں بھی آڈر پر تیار کی جاتی ہیں  
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Students who look beyond the campus bookstore can typically find lower prices. With the ISBN or title, author and edition, most textbooks can be located through online used book sellers or retailers.

Most leading textbook companies publish a new edition every 3 or 4 years, more frequently in math and science. Harvard economics chair James K. Stock has stated that new editions are often not about significant improvements to the content. "New editions are to a considerable extent simply another tool used by publishers and textbook authors to maintain their revenue stream, that is, to keep up prices." [9] A study conducted by The Student PIRGs found that a new edition costs 12% more than a new copy of the previous edition (not surprising if the old version is obsolete), and 58% more than a used copy of the previous edition. Textbook publishers maintain these new editions are driven by demand from teachers. That study found that 76% of teachers said new editions were justified "half of the time or less" and 40% said they were justified "rarely" or "never". [10] The PIRG study has been criticized by publishers, who argue that the report contains factual inaccuracies regarding the annual average cost of textbooks per student. [11]

The Student PIRGs also point out that recent emphasis on e-textbooks does not always save students money. Even though the book costs less up-front, the student will not recover any of the cost through resale,..