

University and Community Service: Practical Examples of University Contribution to Development, Innovation, and Solving Societal Problems

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Received: 03/07/2026

Accepted: 02/09/2026

Published: 09/10/2026

Abstract

This study aims to demonstrate the true role of education in general, and community education in particular, in linking academic knowledge to reality by using the outputs of scientific research to solve the daily problems that society suffers from. This is done with the goal of developing a sense of social responsibility and citizenship among students, while providing leading applied models of successful problem-solving-based education in meeting the needs of individuals, improving quality of life, and overcoming difficulties and obstacles in various fields such as health, transportation, hospitality, nutrition, local governance, and others.

Keywords: University, Community Service, Creativity and Innovation, Problem-Solving Education.

Introduction

University is considered one of the most important institutions entrusted with carrying out strategic functions centered on humanity and society. It is not merely a place or building where students gather to receive theoretical academic knowledge and then graduate by passing periodic exams culminating in obtaining a degree in their specialization only. Moreover, it is also a key player in bringing about the desired and appropriate change for the labor market through community service, which means the service inherent in every scientific, research, or applied activity that contributes to diagnosing societal problems, then analyzing them and finding innovative solutions for them in a way that ensures improving life quality.

This orientation has rapidly led to the emergence of profound transformations in the fields of technology, the environment, the economy, and digitalization, which necessarily reflected on the functions of the university. Today, the university has become more open to the local and international community through scientific projects aimed at addressing issues of poverty and unemployment, health, and supporting innovation and entrepreneurship. This has given rise to new concepts, such as the concept of the Community Service University, which in many universities worldwide has become one of the indicators used to measure the quality of higher

education. This metric is mainly based on the extent of the university's participation in solving real-world problems and on the degree to which it transforms its theoretical research into applied models that can be utilized to correct public policies and reduce and alleviate individuals' suffering across various fields.

This paradigm shift has led to the emergence of a new concept of higher education, namely Problem-Based Learning. Based on these premises, this study aims to examine the societal role of the university through the presentation and analysis of realistic applied models. The university has played a major role in solving political, economic, and social problems from which societies have suffered for a long period of time. Accordingly, the following research problem can be formulated: *How can university and scientific research contribute to serving the community?*

1. The Conceptual Framework of Community Service University, and Innovation

1.1 The Concept of the University

University is defined as an academic institution concerned with scientific research and aims to produce knowledge, develop skills and capabilities, and contribute effectively to comprehensive development. It also grants academic degrees to students to qualify them to enter the labor market and to raise the level of community culture. The term university is derived from the Latin phrase *universitas magistrorum et scholarium*, which means a university of teachers and students. In English, its origin is derived from the word university, meaning a higher education institution, from the Latin *universus*, meaning unambiguous and explicit, and mixed into one, meaning the presence of teachers and students in one place (Encyclopædia Britannica, 1911; Cambridge University Press, n.d.). In Arabic, the university is taken from the verb (j.m.'), meaning gathering and unification.

The true origin of the word "university" in its modern sense dates back to the fifteenth century AD. It refers to a grouping of entities that were merged or established for the teaching of priests initially, as the first signs of the emergence of the university were purely religious, or more precisely, purely Christian. The University of Bologna is considered the oldest university in the modern sense, with its establishment dating back to the eleventh century.

However, the first university in the world was Al-Qarawiyyin University in Fez in the ninth century, followed by Al-Azhar University, which was founded by the Fatimids in Egypt. In general, the roots of the university are Christian; its initial focus was on the education of monks and the awarding of degrees, and it was closely linked to the Catholic Church before developing into other fields such as medicine, engineering, and science, and subsequently other prestigious universities emerged, such as Cambridge, Oxford, Salamanca, and others.

1.1.1 International Organizations' Definition of University

- **UNESCO:** As the only United Nations agency concerned with higher education, UNESCO noted that approximately 264 million students were

enrolled in universities worldwide in 2023 (Edupathway, n.d.). According to UNESCO, the university is not merely an institution that grants degrees through research and learning, but also one that works to serve society and humanity. Higher education, according to the organization, encompasses all types of education (academic, vocational, technical, distance learning, etc.). Thus, it refers to all institutes, training colleges, and scientific research institutions such as universities (Ecofin Agency, 2025). UNESCO affirms that higher education is primarily intended for all students who have successfully completed their secondary education and who seek to obtain a title, degree, certificate, or diploma in higher education (International Association of Universities [IAU], 2000).

- **International Association of Universities (IAU):** According to the IAU, a university is defined as “an institution officially recognized that provides multidisciplinary higher education, awards academic degrees, conducts research, is committed to academic autonomy, and contributes to societal development through continuing education and scientific research.” (International Association of Universities [IAU], 2000).
- **International Federation of Catholic Universities:** The federation defines the university as an independent academic institution that seeks to achieve human development through higher education, scientific research, and community service (Dicastery for Laity, Family and Life, n.d.).
- **UNESCO Institute for Higher Education in Latin America and the Caribbean (IESALC):** IESALC defines the university as “an educational space that combines research, teaching and community service with a focus on knowledge production and skills development to keep pace with global changes.” (UNESCO-IESALC, n.d.).
- **Bologna Process (1999):** Under this framework, the definition states that a university is an institution of higher education that must ensure its academic autonomy, rely on research as the foundation of teaching, and aim to promote international understanding and the development of knowledge across borders (European Commission, n.d.).
- **World Bank Higher Education Report (2000):** The World Bank states that a university is part of the higher education system that provides opportunities for advanced education, serves as a primary source of knowledge and skills, and promotes innovation and economic growth (World Bank, n.d., p. 1).
- **Organization for Economic Co-operation and Development (OECD):** According to the OECD, universities are higher education institutions that combine teaching, scientific research, and the provision of community services, with a focus on achieving quality and innovation (OECD, 2019).
- **United Nations, Human Development Report (2003):** The UN views the university as an academic institution whose primary function is to provide

higher education, conduct scientific research, and promote intellectual dialogue in a way that contributes to achieving sustainable human development (Drissi et al., 2025, p. 4).

- **European Union (EU) Framework Framework (EHEA):** A university is defined as an independent institution that provides higher education and promotes academic cooperation and scientific research at the European level (European Commission, n.d.).

1.2 The Concept of Community Service

The concept of community service initially emerged as a voluntary effort undertaken by individuals and groups to alleviate the suffering of marginalized and needy classes. In Arabic, the word service is defined as work done by a person for the benefit of others (Vocabulary.com, n.d.). As for the word community, it comes from the root meaning to gather, assemble, and unite. A community is a group of individuals living in one place, bound by shared interests and relationships (Merriam-Webster, n.d.).

The combination of the two terms, in technical usage, refers to community service, which encompasses voluntary or planned efforts made by individuals or institutions to develop society and improve living conditions through participation in developmental and humanitarian activities with the aim of achieving the common good. Yaray defined it as organized efforts that are allocated and employed to assist individuals and groups in fully satisfying their needs through social institutions within a stable community (Stukas et al., 2014, p. 3).

Furthermore, Auguste Comte views community service as aiming to improve the conditions of individuals and society through organized knowledge and voluntary work (Bourdeau, 2026), whereas the American educational philosopher John Dewey considers community service as an educational tool that transforms learning into a social experience. It makes citizens more aware of their responsibilities towards their community. He adds that **"the highest form of education is that which enables learners to live by knowledge in reality and use it to solve social problems, considering learning and service as complementary processes"** (Simoni, 2020, p. 6).

This is the same view held by Ernest Boyer, a researcher in higher education, who believes that community service at the university is not a peripheral activity; rather, it is considered an essential part of applied scientific research that links academic knowledge to society's need for solutions (Boyer, 1997, p. 77).

The nature and components of the educational process have changed with the development of the concepts of comprehensive, integrated experience between teacher and student, so that learners are no longer merely passive recipients of what is delivered to them. Instead, educational strategies are designed to make students more actively engaged in the learning process and contribute to it (Instruction in Libraries, n.d.). This approach emerged alongside the rise of German research universities in the 19th century, where an additional mission was assigned to the university related to the

transfer of knowledge alongside education and workforce preparation. This shift led by the mid-20th century to what became known as the modern university, which focuses on both research and teaching, with a greater emphasis on research.

The American educational scholar Velen argued that teaching undergraduate students is dull and unenjoyable in comparison with the exciting and socially valuable function of scientific research (Anderson, n.d.). Compared to the traditional functions, the function of scientific research is characterized by excitement and social value (Barrows & Tamblyn, n.d., p. 1). It is therefore considered that the problem-solving approach, based on educational experience and grounded in the learner's own everyday life problems, is of great importance in convincing students that the knowledge they acquire has immediate significance and practical value for their personal problems and those of their society. This is because the learner is directly involved in exploring the problem, collecting sufficient information about it, and then formulating scientific solutions through creative thinking and continuous scientific research.

This successful educational model was initially implemented at McMaster University, particularly in the field of health sciences, and later put into practice at Aalborg University and Roskilde University in engineering. It later spread to leading universities in the United States, China, and Europe. However, the pioneer who developed this educational model with the aim of serving society was Professor Howard S. Barrows, a physician and faculty member at McMaster University's Faculty of Medicine. He observed that medical students tended to memorize theoretical information without being able to apply it effectively or deal properly with diseases. Consequently, he introduced this educational model, which enables students to acquire skills by confronting real problems, through which they develop analytical skills, critical thinking, and appropriate decision-making, rather than relying on rote memorization and passive instruction.

The PBL (Problem-Based Learning) model then moved from Canada to Maastricht University, Australia, the University of Newcastle, and later to Harvard University in the fields of medicine and management. It was also adopted in Sweden at Enköping University, and at Aalborg University, which is a leading institution in applying the PBL approach in engineering, and later in Singapore, where it was implemented in medicine, education, and business administration at the National University.

Subsequently, community service based on the problem-solving educational approach came to be regarded as a branch of modern sociology, defined as the use of social knowledge and theories in designing and implementing intervention programs aimed at solving the problems of individuals and groups within the local community. From this, the concept of community service further evolved to become more closely linked to scientific research and higher education, giving rise to a modern term known as social innovation, which refers to developing new and innovative solutions to social problems through the use of scientific and technological tools, with the aim of:

- Diagnosing social problems.
- Identifying structural causes.
- Designing deliberate and well-considered social interventions.
- Evaluating the impact of policies and programs.

1.2.1 Definition of Community Service According to International Organizations

- **UNESCO:** UNESCO defines community service as the participation of individuals and institutions in activities that seek to promote social and economic development, build a sense of citizenship, and achieve the goals of sustainable development.
- **United Nations:** Community service is a form of voluntary work that aims to support development and empower individuals to actively participate in improving their social structure.
- **International Federation of Social Workers (IFSW):** Community service is a professional and humanitarian practice that aims to empower individuals and groups, and promote equality and respect (International Federation of Social Workers [IFSW], n.d.).
- **Organization for Economic Co-operation and Development (OECD):** Community service refers to educational practices based on engaging students in real-world projects that contribute to the development of the local community through the application of their knowledge in academic and scientific contexts (OECD, n.d., p. 1).

1.3 The Concept of Creativity and Innovation

Creativity is considered a fundamental concept in the literature of education and teaching. Its definitions vary according to the perspective from which it is viewed (Lexico, n.d.). The Oxford Dictionary defines creativity as the use of imagination or original ideas to create something new; in other words, the spirit of innovation. The Encyclopedia of Psychology defines creativity as any mental or intellectual activity that differs from sensory perception and sensory awareness, or goes beyond both toward abstract thinking. The Management Dictionary, on the other hand, defines creativity as the creation of something new without precedent. In the field of management, creativity refers to the development of methods or ideas that are accepted by others and that motivate them to invest their energies in producing creative work characterized by novelty and the ability to attract, influence others, and gain their approval and satisfaction (George, n.d., p. 1).

The following are some definitions proposed by prominent researchers:

- **Guilford (1950):** Argues that creativity is divergent thinking, which generates multiple new and innovative ideas for solving problems (Drago & Heilman, 2012).
- **Torrance:** Defines creativity as the ability to sense problems and gaps, anticipate them, formulate hypotheses about them, test and refine these hypotheses, and communicate the results (Almeida, 2008, p. 2).

- **Amabile:** Defines creativity as the production of work that is both novel and useful within a specific social context, requiring motivation, skills, and a supportive environment (Al-Ababneh, n.d., p. 245).

Innovation is defined by the Cambridge Dictionary as new thinking, a new method, or the use of new ideas to improve something (Cambridge Dictionary, n.d.). Schumpeter (1934) defines innovation as the practical application of new ideas in the fields of production and services, leading to the creation of new economic value (Śledzik, n.d., p. 90).

1.4 The Process of Problem Solving

The literature indicates that a problem represents an obstacle faced by an individual, preventing them from achieving harmony between what they desire and what exists in reality. This situation creates a state of tension and confusion that drives the individual to search for different mechanisms and methods to eliminate this state. A problem, in essence, is a natural condition encountered not only by the ordinary individual, but also by specialists, technicians, researchers, and society as a whole.

Problem solving, in turn, is an organized form of behavior that seeks to achieve a specific goal through thinking and the use of strategies and methods that help eliminate this state. However, before presenting the most important theories that stimulate creativity in problem solving, it is first necessary to clarify the true meaning of the concept of problem solving. Numerous researchers have proposed different definitions, depending on their perspectives and fields of specialization. Some view problem solving as an organized and goal-directed cognitive process in which the individual uses their experiences and knowledge to overcome an ambiguous situation, while others define it as an individual or collective effort aimed at achieving a specific goal.

- **The Oxford Dictionary:** Defines problem solving as the process of finding solutions to difficult or complex issues.
- **The Cambridge Dictionary:** Defines problem solving as the process of finding answers to problems through logical and creative thinking.
- **Educational Psychology Perspective:** Problem solving involves the use of successful cognitive processes to identify a problem, generate alternatives, and then select the most appropriate strategy to resolve it (OECD, n.d., p. 1).
- **John Dewey:** Argues that problem solving is a reflective thinking process that begins when an individual or a group encounters a difficulty and ends with the formulation of a plan of action to resolve it (Simoni, 2020, p. 6).

Based on the foregoing analysis, it becomes evident that creativity and problem solving constitute essentially the same phenomenon; that is, creativity is nothing but the process of finding solutions to existing problems through different steps and strategies. Accordingly, this study seeks to address this relationship by examining the most important theories that have attempted to formulate methods for developing

creativity and applying it in various fields such as management, engineering, local governance, and higher education:

- **Brainstorming Theory:** Developed by Alex Osborn, this theory is based on generating the largest possible number of ideas without evaluation or restriction. The aim is to collect as many ideas as possible to solve the problems at hand, which stimulates the mind toward creativity without fear of opposition or criticism. The theoretical foundation of this approach relies on the assumption that creative thinking can be developed through training, practice, and education, rather than being inherited or determined by prior innate traits. This perspective later became known as constructivist learning, which enables learners to acquire skills through active participation in problem solving.
- **Theory of Inventive Problem Solving (TRIZ):** Founded by Genrich Altshuller in the 1940s, this approach is based on the systematic study of thousands of patents and drawing inspiration from them to generate innovative solutions. The theory emphasizes that all innovations follow recurring patterns. Therefore, existing inventions can be used to generate new inventions and innovations that help solve emerging problems in systematic and creative ways. The TRIZ method has been employed in innovative education within higher education as a tool to enable students to think like inventors through: developing problem-solving skills instead of relying on theoretical instruction; encouraging critical thinking; designing solutions to societal problems; and transforming failures into opportunities for research, learning, creativity, and continuous improvement (International Association of Project Managers [IAPM], n.d.).
- **Six Thinking Hats Theory:** This theory was proposed by physician and psychologist Edward de Bono in 1986. According to de Bono, human thinking can be divided into different levels, with each representing a particular perspective on a problem, rather than attempting to think of everything at once. The theory uses color symbolism to designate different thinking functions, leading to organized, comprehensive, creative, and structured thought. For example:
 - The *white hat* represents data collection and analysis.
 - The *red hat* represents emotional thinking, allowing individuals to express feelings and impressions objectively without logical justification.
 - The *black hat* corresponds to critical evaluation and identifying potential risks or flaws.
 - The *yellow hat* emphasizes identifying potential benefits and opportunities through positive and constructive thinking.

- The *green hat* represents the generation of ideas and alternative creative solutions.
- The *blue hat* represents the level of controlling the thinking process and coordinating roles to implement solutions on the ground through organized and guided thinking.

When applied in innovative, problem-solving education, this theory serves as a teaching tool, especially in academies that deal with complex problem-solving. Students are divided into groups, with each group focusing on a specific thinking level, allowing the coordinating group to integrate the results and develop appropriate solutions for complex problems—for example, analyzing the benefits and risks of artificial intelligence for society (Setyaningtyas & Radia, 2019, pp. 85-86).

With the development of artificial intelligence, design thinking, and project-based learning, new community-oriented approaches have emerged, such as *Design Thinking* and *Computational Thinking*, which are now considered pillars of innovative digital education. Another related approach is *Challenge-Based Learning (CBL)*, developed by Apple and the University of Texas in 2008 (Setyaningtyas & Radia, 2019, pp. 85-86).

Generative Learning Theory, founded by Merlin Wittrock (1989), emphasizes that students create new meaning by connecting prior knowledge with new information, enabling deeper understanding and the construction of knowledge through active engagement (Sigmund Tobias, n.d.). With the rise of adaptive problem-solving technologies, a new frontier in innovative education has emerged. The most recent approach in innovative education is *Systems Thinking*, which addresses problem solving through interconnected networks rather than isolated elements, as seen in the Six Thinking Hats model. Systems Thinking is particularly effective for tackling structural problems such as poverty and climate change (Sigmund Tobias, n.d.).

2. The Fundamental Roles of the University in Serving Society

2.1 The Political Role of the University

The university plays numerous roles, including in the political sphere, by raising societal awareness and reducing political alienation and apathy through the engagement of its students in politically oriented university activities via associations, parties, and labor organizations. The university is considered the primary beating heart of political life (Zhao, 2024, p. 65). Even during periods of colonialism, university students played a major role in raising political awareness and combating colonial rule, whether through peaceful demonstrations or through direct participation in revolutionary movements.

This was the case during the Algerian Revolution against French colonization, led by the Union of Algerian Muslim Students (UGEMA), which was established in 1955. UGEMA issued its famous statement in 1956, officially joining the liberation revolution, abandoning their studies, and taking up arms alongside the freedom fighters (Wallon, 2014, p. 160). Likewise, students at Cairo and Alexandria

Universities organized numerous demonstrations against the British occupation in Egypt in 1919, subsequently joining the national movement led by Saad Zaghloul to demand independence from British rule (Zayed et al., 2016, p. 7).

Following the same approach, the Union Générale des Étudiants de Tunisie (UGET) staged demonstrations against the French occupation in Tunisia in 1952 (Wallon, 2014, p. 160). In Morocco, students participated in uprisings during the 1950s to demand the return of King Mohammed V from exile and independence from France. Indian universities also played a significant role in raising political awareness, with the University of Calcutta and the University of Bombay serving as centers for national movements against British colonial rule (Tripathi, 2021, p. 180).

In South Africa, students at universities such as the University of Cape Town resisted the apartheid system by organizing protests aligned with Nelson Mandela's movement and the African National Congress (ANC) (Erbmann, 2005). In South Korea, during the Japanese occupation (1910–1945), universities led cultural and political struggles against the occupiers, including demonstrations in 1919. After independence, university students continued to play a crucial role in raising political and societal awareness and combating corruption, with universities becoming open forums for discussions on democracy and human rights struggles (Encyclopædia Britannica, n.d.).

Universities have also significantly contributed to providing societies with elites, professionals, and influential leaders in shaping public policies, leading political parties, and occupying key state leadership positions, not to mention drafting constitutions through university professors. Moreover, universities contribute to academic theorization and the production of political thought, generating new concepts through research, theses, and dissertations. Universities explore political theories that explain political phenomena, such as power, the state, and citizenship, while also contributing to the formulation of new concepts to develop society and the political system, including legitimacy, good governance, globalization, and the social contract.

In general, the main contributions of the university in the political domain can be summarized as follows:

- **Development of Political Thought:** The university has significantly influenced the evolution of political thought, producing numerous theories that emerged from academic research and discourse. These include liberalism, individual rights, and Marxism based on class struggle.
- **Preparation of Intellectual and Political Elites:** Universities cultivate students with knowledge and competence who, through student work and social engagement, gain practical training in leadership and participatory skills, equipping them for future roles in societal and political spheres.
- **Consolidation of Democratic and Civic Values:** Through dialogues, seminars, and fostering civic participation, universities instill values of

engagement, critical thinking, and promote student elections that strengthen democracy, public opinion, and societal awareness.

- **Research in Public Policy:** By leveraging university outputs and evidence-based research, universities provide policymakers with data, indicators, and implementation mechanisms. For example, the Center for Public Policy at the University of Glasgow exemplifies how academic research informs public decision-making.
- **Contribution to Democratic Transition and Sustainable Development:** Through academic theorization of democratic transition, universities help identify methods and mechanisms that support the spread of democratic values and human rights. Prominent supporting theories include *Modernization Theory*, applied in South Korea; *Elite-Choice Theory*, implemented in Spain in the 1970s; *Transitology Theory*, covering Eastern European countries after 1989; and the *Diffusion/International Influence Theory*, which guided the third wave of digital transformation.

2.2 The Economic Role of the University

Many scholars and researchers in various fields have emphasized the significant economic role of the university in raising awareness and preparing societies to achieve development. This perspective aligns with Gramsci's idea of building societal consciousness in emerging communities, considering universities as central instruments for cultivating new awareness in societies. Universities worldwide have leveraged this role either by contributing to the transition from socialist to capitalist systems in Eastern European countries and Germany, followed by developing nations after waves of democratic transformation, or by facilitating the shift from authoritarian dictatorial regimes to democratic systems.

As exemplified by the role German universities played after World War II in 1945, universities underwent comprehensive reforms to rebuild the collective conscience and facilitate a gradual transition to a market economy. Freie Universität Berlin, established with American support, aimed to combat totalitarian ideology and promote the values of modernity, market economy, privatization, and competition. Moreover, prestigious universities contributed by providing methodologies and studies that facilitated the transition to capitalism, most notably the London School of Economics (LSE) since the Cold War, along with research centers such as the Transition Studies Centre.

In general, the most significant economic roles and functions of higher education can be summarized as follows:

- **Formation of Human Capital:** According to the *Human Capital Theory* proposed by Theodore W. Schultz and later developed by Gary Becker, the university contributes materially to increasing productivity through the adoption of new methods. This, in turn, improves the standard of living, which directly impacts consumption and economic growth. This theory has had

significant real-world effects, as countries have come to recognize that funding knowledge through universities is an investment in developing skilled human capital to support the economy with a qualified workforce (Mayilyan & Yedigaryan, n.d., pp. 73-74).

- **Endogenous Growth Theory:** Proposed by Paul M. Romer in 1994, this theory emphasizes that long-term economic growth is not solely tied to material productivity or capital accumulation. Technological and knowledge advancement are directly influential on national income, meaning that learning, research, and innovation are essential outputs of universities that transform the global economy (Romer, 1994, p. 4).
- **Knowledge-Based Economy:** The *Knowledge-Based Economy* framework emphasizes that knowledge, skills, and technology are the primary drivers of the economy. Universities now not only produce skilled professionals but also generate and distribute knowledge. They form partnerships with companies, business incubators, and contribute to technology transfer through university-industry-government collaborations (Mortazavi & Bahrami, 2012, pp. 283-284).

These perspectives have given rise to pioneering managerial approaches that have transformed management and economic concepts, such as *Management by Objectives (MBO)*, *Total Quality Management (TQM)*, and *Problem-Based Learning (PBL)*. The TQM approach, focused on continuous improvement, transformed the Japanese economy into one of the world's strongest. Likewise, the PBL approach has expanded students' critical thinking skills and enabled them to enter the labor market while still studying, through research and innovation projects aimed at solving societal problems and analyzing real labor market needs. This approach allows universities to manage required specializations effectively, addressing shortages and preventing the graduation of students in fields that are not in demand.

2.3 The Social Role of the University

In addition to its political and economic contributions, the university has a direct role in theorizing mechanisms and methods that effectively serve society and solve its problems. It also develops theories and concepts that facilitate the analysis of social issues and the search for practical solutions through academic research, including the *Quadruple and Quintuple Helix models*, which integrate university efforts with civil society, media, industry, government, and the university itself.

Moreover, the concept of *University Social Responsibility (USR)* emphasizes the university's direct contribution to solving societal problems and influencing the social environment through solutions based on science and technology. Several models of this concept have emerged in Europe; for example, *ENGAGE.EU* is an alliance of universities from various social science disciplines. Its main objective is to address social challenges, risks, and threats facing society through Engaged Learning, Engaged Research & Innovation, and Engagement in Society. This educational

approach relies on creating interactive specialized laboratories in which students, researchers, and decision-makers collaborate to produce tangible solutions that can be implemented on the ground.

In the United States, the *University Social Responsibility Network (USR Network)* established an international network of leading universities to measure the social impact of higher education outputs. It uses practical workshops to set indicators, such as the number of community partnerships, student participation in community service projects, and tangible contributions to reducing societal problems. Likewise, the "Engaged University" model in the United Kingdom emphasizes the participation of organizations and local communities as part of what is called the "Third Mission" of universities.

This framework highlights the significant influence of university-derived theories that promote social change, embed societal values, and mobilize communities through media, public discourse, curricula, and civic engagement:

- **The Hypodermic Needle Theory:** Emerging in the 1930s, this theory focuses on the role of media in educating the masses, analogous to how a needle injects substances into the skin, thereby influencing public attitudes and behaviors (Ayesh Perera, 2024).
- **Agenda-Setting Theory:** Developed by Maxwell McCombs and Donald Shaw in 1972 at the University of North Carolina, this theory posits that the media does not tell people what to think, but rather what to think about. It directs and prioritizes public discussion, guiding society toward teamwork and competitiveness (McCombs & Shaw, 1972, p. 179).
- **Cultivation Theory:** Founded by George Gerbner at the University of Pennsylvania, this theory asserts that continuous exposure to media instills specific perceptions and ideas in individuals, deliberately shaped by responsible authorities, which gradually influences their worldview, tastes, and preferences (Ayesh Perera, 2023).

3. Practical and Applied Models of University Contributions to Solving Societal Problems

Universities play a major role in society through the research and studies they conduct, which identify areas of weakness and propose optimal solutions through objective scientific research. This approach, known as *transformative research*, leverages student-led studies to address societal problems. Many leading universities have adopted this practical approach, using innovation-driven university policies, including the University of California, Stanford University, MIT, the University of London, the University of Bath, and Aarhus University in Denmark.

These universities focus on political awareness, fostering civic engagement, promoting the values of humanity, and applying pressure on governments to reform public policies particularly on issues such as climate change, human rights, and social justice. In the context of transforming the university from a purely theoretical

institution to a practical agent of societal problem-solving, several applied models have demonstrated how academic ideas have reshaped traditional governmental practices:

3.1 In the Field of Politics and Governance

- **Participatory Budgeting (Porto Alegre, Brazil):** The idea of engaging local communities in municipal management emerged in the late 1980s and early 1990s. This approach enabled broader citizen participation in decision-making and local financing, including proposing and prioritizing projects for implementation. The initiative was highly successful in Brazil and later became a global model adopted by many countries (World Bank, 2008, p. 12).
- **Research Center Networks (J-PAL) and Evidence-Based Policy:** The network of research centers, J-PAL, translates its randomized controlled trials (RCTs) in areas such as poverty, education, and health into actionable recommendations for relevant authorities. Examples include school-based deworming programs, cash transfer initiatives, and public sanitation programs, which contribute directly to social stability (Abdul Latif Jameel Poverty Action Lab [J-PAL], n.d.).
- **University Policy Centers / Policy Labs (HKS, The GovLab):** These university-based labs, including those at Harvard Kennedy School, connect academic research with policymakers. They provide performance indicators, manage open data, formulate evidence-based innovative policy recommendations, and assist decision-makers in adapting public policies according to empirical findings.
- **Massachusetts Institute of Technology (MIT) Digital Projects:** MIT has produced pioneering projects on digital participation and government transparency in collaboration with multiple countries, developing tools for analyzing local voting data currently used in smart government systems (Massachusetts Institute of Technology [MIT], n.d., p. 6).
- **University of Copenhagen (Digital Democracy):** The University of Copenhagen conducted transformative research on digital democracy, specifically studying electronic reference through the Techno Politics Initiative, contributing to secure electronic voting systems in Scandinavian countries.

3.2 In the Field of Economics and Innovation

- **ARPANET Internet Network Model:** Originally a research project called ARPANET, started in 1969 in the United States with the participation of several universities and research centers. It later transformed from an academic project into a revolutionary technical and social medium for information and data globally (Serres, 2000, p. 47).
- **Google Company Model:** Two students, Sergey Brin and Larry Page, from Stanford University, conducted research titled *PageRank* as part of their

doctoral studies in computer science. Using an algorithm to rank web pages, their idea evolved into the giant corporation Google in 1998, creating a pioneering model in search and knowledge management (Cornell University, 2019).

- **University Hotel Model (Hong Kong):** The Hong Kong Polytechnic University implemented a pioneering experience by purchasing a hotel and converting it into an educational hotel to train students in hospitality and tourism management, officially opened on September 21, 2011 (Lau et al., n.d., p. 4). The project demonstrated major innovations in the tourism and hospitality economy, particularly during the COVID-19 crisis, introducing innovations in booking systems, water treatment, and service development.
- **Bitcoin Concept / Digital Currency Model:** The concept of Bitcoin began as a research paper titled *Bitcoin: A Peer-to-Peer Electronic Cash System* in 2008. The theoretical idea later became a practical application that revolutionized financial transfers through research conducted by universities specializing in cryptography and decentralized economics (Rose, 2015, p. 617).
- **Grameen Bank Project (Bangladesh):** The microfinance project was originally initiated by Professor Muhammad Yunus at the University of Chittagong, who proposed a research project in 1976 to explore partnerships between students and the local community. The idea later evolved into an actual microfinance bank, significantly improving the lives of impoverished communities (Yusuf & Jazarie, n.d., p. 6).
- **Amartya Sen's Translational Research Model:** As a professor at Cambridge and later Harvard, Sen developed the concept of development during the 1980s to include expanding choices and capabilities rather than mere economic growth. His studies formed a roadmap adopted by the United Nations in 1990 to design the Human Development Index (HDI).

3.3 In the Field of Social Care and Health

- **Head Start Program (United States):** Yale University conducted in-depth studies on the impact of early education on children from impoverished families. These studies quickly evolved into the *Head Start* social welfare program in 1965, aimed at supporting the education of children from vulnerable and low-income backgrounds (National Head Start Association [NHSA], 2025, p. 4).
- **Oxford Poverty and Human Development Initiative:** At the University of Oxford, researcher Sabina Alkire expanded the concept of poverty to include multiple dimensions such as education, welfare, and health, which became the basis for the Multidimensional Poverty Index adopted by the United Nations in 2010 (Oxford Poverty & Human Development Initiative [OPHI], 2007, p. 1).

- **Doctors Without Borders (Médecins Sans Frontières - MSF):** The initiative began in the 1970s by a group of French doctors and university researchers who studied the ethics of medical intervention during crises, evolving into a global humanitarian organization (Paul, 2019, p. 1).
- **World Health Organization (WHO):** The WHO originated from academic medical and social research in European universities after World War II, leading to its formal establishment in 1948 to coordinate global healthcare efforts (McCarthy, 2002, p. 1).
- **Bolsa Família Program (Brazil):** Inspired by university research at the University of Brasília and the University of São Paulo during the 1990s, researchers proposed a conditional cash transfer program for poor families, contingent on children attending school and receiving health checks, reducing poverty rates by over 16% (Mourao & de Jesus, 2012, p. 44).
- **Global University Performance Indicators Model:** Most rankings, such as the Shanghai Ranking (ARWU) launched in 2003 at Shanghai Jiao Tong University, and the Times Higher Education (THE) and QS rankings (2004), originated from joint research studies evaluating higher education quality and the societal impact of university research.

Conclusion

The preceding analysis illustrates the functional evolution of universities in the modern era, alongside the transformation of their philosophy, mission, and roles. Universities are no longer merely ivory towers or academic institutions built on rote learning and knowledge production, culminating in the awarding of degrees at the end of a student's training. Particularly in developed countries, universities have evolved into research-driven social institutions grounded in social responsibility. Their functions now include productive practical outputs that contribute to strategies in development, health, environment, economy, and politics.

Serving society aligns fundamentally with the concept of transforming academic knowledge into actionable practices and mechanisms. It has given rise to a new concept of the university—the "productive university"—which provides developmental solutions for its communities rather than merely diagnosing problems and offering theoretical opinions that remain shelved in libraries. Therefore, educational strategies in developing countries should adopt the model of the service-oriented university, leveraging successful experiences and implementing new educational tools through modern curricula, most notably Problem-Based Learning (PBL).

Activating the university's role in serving society fundamentally requires:

1. Opening the university to the problems of its social environment.
2. Encouraging applied scientific research.
3. Linking academic grants and privileges to the rigor of university research and its societal impact.

4. Focusing on community service indicators in evaluating and ranking national universities to foster competitiveness.
5. Establishing actual operational enterprises, not merely symbolic ones, in partnership with the private sector and decision-makers.
6. Valuing innovative research and encouraging student researchers both financially and morally.
7. Shifting higher education curricula away from rote learning, focusing instead on learning through innovation and creativity.

References

1. Al-Ababneh, M. M. (n.d.). The concept of creativity: Definitions and theories. *International Journal of Tourism & Hotel Business Management*, 2(1), 245–254.
2. Almeida, L. S. (2008). Torrance Test of Creative Thinking: The question of its construct validity. *Thinking Skills and Creativity*, 3(1), 1–12.
3. Anderson, R. (n.d.). *The 'Idea of a University' today*. History & Policy. historyandpolicy.org
4. Barrows, H. S., & Tamblyn, R. M. (n.d.). *Problem-based learning: An approach to medical education*. Springer Publishing Company.
5. Bourdeau, M. (2026). Auguste Comte. In E. N. Zalta & U. Nodelman (Eds.), *The Stanford Encyclopedia of Philosophy* (Spring 2026 ed.). Stanford University. stanford.edu
6. Boyer, E. L. (1997). *Scholarship reconsidered: Priorities of the professoriate*. The Carnegie Foundation for the Advancement of Teaching.
7. Cambridge Dictionary. (n.d.). Innovation. In *Cambridge dictionary*. cambridge.org
8. Cambridge University Press. (n.d.). University. In *Cambridge English dictionary*.
9. Cornell University. (2019, October 28). *The academic paper that started Google*. Info 2040 Blog. cornell.edu
10. Dicastery for Laity, Family and Life. (n.d.). *Federazione internazionale delle università cattoliche*. laici.va
11. Drago, V., & Heilman, K. M. (2012). Creativity. In *Encyclopedia of human behavior* (2nd ed.). Academic Press.
12. Drissi, M., et al. (2025). The role of universities in implementing the sustainable development goals (SDGs): A case study of Hassan First University 2018–2023. *Discover Sustainability*, 6(4), 1–15.
13. Ecofin Agency. (2025, October 28). *UNESCO clarifies higher education scope amid global skills evolution*. ecofinagency.com
14. Edupathway. (n.d.). *Student mobility for higher education tripled in two decades*. edupathway.com

15. Encyclopædia Britannica. (1911). Universities. In *Encyclopædia Britannica* (11th ed.). Wikisource.
16. Encyclopædia Britannica. (n.d.). Gwangju Uprising. In *Encyclopædia Britannica*. britannica.com
17. Erbmman, R. (2005). *Conservative revolutionaries: Anti-apartheid activism at the University of Cape Town 1963-1973* (Doctoral dissertation, Oxford University). South African History Online (2021).
18. European Commission. (2026, May 4). *The Bologna Process and the European Higher Education Area*. European Education Area. europa.eu
19. George, J. M. (n.d.). Creativity in organizations. *Academy of Management Annals*, 1(1), 1–51.
20. Instruction in Libraries. (n.d.). *Active learning: Engaging people in the learning process*. illinois.edu
21. International Association of Project Managers [IAPM]. (n.d.). *TRIZ*. iapm.net
22. International Association of Universities [IAU]. (2000). *Academic freedom, university autonomy and social responsibility* (IAU Policy Statement). iau.global
23. International Federation of Social Workers [IFSW]. (n.d.). *Global definition of social work*. ifsw.org
24. Lau, C. K. H., et al. (n.d.). *Connecting the hotel icon: Building iconic resources from authentic experience with multi-disciplinary student projects*. 9th Asia-Pacific CHRIE Conference, The Hong Kong Polytechnic University.
25. Massachusetts Institute of Technology [MIT]. (n.d.). *An overview*. MIT Press.
26. Mayilyan, F., & Yedigaryan, K. (n.d.). The evolution of human capital theory. *Alternative Quarterly Academic Journal*, 73–84.
27. McCarthy, M. (2002). A brief history of the World Health Organization. *Special Report*, 360(9340), 1–11.
28. McCombs, M. E., & Shaw, D. L. (1972). The agenda-setting function of mass media. *Public Opinion Quarterly*, 36(2), 176–187.
29. Merriam-Webster. (n.d.). Community. In *Merriam-Webster.com dictionary*. merriam-webster.com
30. Mortazavi, H., & Bahrami, M. (2012). Integrated approach to entrepreneurship-knowledge based economy: A conceptual model. *Procedia – Social and Behavioral Sciences*, 41, 281–286.
31. Mourao, L., & de Jesus, A. M. (2012). Bolsa Familia (Family Grant) Programme: An analysis of Brazilian income transfer programme. *Field Actions Science Reports*, (Special Issue 4), 40–47.
32. National Head Start Association [NHSA]. (2025). *Head Start policy agenda (2025-2026)*. NHSA.
33. OECD. (2019). *Benchmarking higher education system performance*. Higher Education, OECD Publishing. doi.org



34. OECD. (n.d.). *Engaging young citizens: Civic education practices in the classroom and beyond*. OECD Publishing.
35. Oxford Poverty & Human Development Initiative [OPHI]. (2007). *Research in progress series 2007*. Oxford Department of International Development, Queen Elizabeth House, University of Oxford.
36. Paul, S. (2019). *Doctors Without Borders-Médecins Sans Frontières*. MSF.
37. Perera, A. (2023). *Cultivation theory in media*. Simply Psychology.
38. Perera, A. (2024). *Hypodermic needle theory (Magic bullet theory of communication)*. Simply Psychology.
39. Poverty Action Lab [J-PAL]. (n.d.). *Evidence for policy*. povertyactionlab.org
40. Romer, P. M. (1994). The origins of endogenous growth. *Journal of Economic Perspectives*, 8(1), 3–22.
41. Rose, C. (2015). The evolution of digital currencies: Bitcoin, a cryptocurrency causing a monetary revolution. *International Business & Economics Research Journal*, 14(4), 617–628.
42. Serres, A. (2000). *Aux sources d'internet : l'émergence d'ARPANET* (Doctoral dissertation, Université Rennes 2).
43. Setyaningtyas, E. W., & Radia, E. H. (2019). Six thinking hats method for developing critical thinking skills. *Journal of Educational Science and Technology*, 5(1), 85–94.
44. Stukas, A. A., et al. (2014). Volunteerism and community involvement: Antecedents, experiences, and consequences for the person and the situation. In D. A. Schroeder & W. Graziano (Eds.), *The Oxford handbook of prosocial behavior*. Oxford University Press.
45. Tobias, S. (n.d.). *Generative learning theory, paradigm shifts, and constructivism in educational psychology: A tribute to Merle Wittrock*. University at Albany, State University of New York.
46. Tripathi, S. K. (2021). Higher educational institutions and India's struggle for independence. *Bi-Lingual International Research Journal*, 11(14), 175–183.
47. UNESCO-IESALC. (n.d.). *Annual reports*. International Institute for Higher Education in Latin America and the Caribbean.
48. Vocabulary.com. (n.d.). Service. In *Vocabulary.com dictionary*. vocabulary.com
49. Wallon, D. (2014). *Combats étudiants pour l'indépendance de l'Algérie : UNEF-UGEMA (1955-1962)*. Editions Casbah.
50. World Bank. (2008). *Brazil: Toward a more inclusive and effective participatory budget in Porto Alegre* (Report No. 40144, Vol. 1). World Bank Group.
51. World Bank. (n.d.). *Higher education: The lessons of experience*. World Bank Group.



52. Yusuf, M. F., & Jazarie, H. (n.d.). *Microfinance (Case study of Grameen Bank)*. Damascus University.
53. Zayed, H., Sika, N., & Elnur, I. (2016). *Movement in Egypt: A microcosm of contentious politics* (Working Paper No. 19). Euro-Mediterranean Study Commission.
54. Zhao, S. (2024). The role of universities in fostering political awareness among students. *Transactions on Comparative Education*, 6, 65–72.