

ASSESSMENT IN FOCUS

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Assessment in Focus is dedicated to disseminate information and developments at the Testing Center, as well as to shed light on aspects of educational measurement and evaluation issues that would assist in the development and maintenance of up-to-standard and quality education at SMU, and similar higher learning institutions in Ethiopia.

Editor's Note

Assessment in Focus is a biannual newsletter which deals with current issues and activities that take place at the Testing Center of St. Mary's University. Testing Center focuses on: conducting different kinds of tests to internal and external customers; this includes local and international tests given in accordance with the request of stakeholders to fill the skill and knowledge gaps of their employees in order to help them update the way they render services to their respective customers. The services given by the Testing Center are: Test of English as a Foreign Language (TOEFL), Graduate Record Examination (GRE), Praxis Administration (PA), Chartered Institute for Securities and Investment (CISI), Aptitude and Employment Tests whose demand is at an alarming rate in the number of beneficiaries. Besides, TC provides short-term trainings to the University staff and others depending on requests aimed at improving the outputs rendered to customers.

In this 2nd Biannual Publication of 2022, articles related to education, general knowledge and entertainment are included. The details contained in the articles encompass: the need for Evaluating Test and Test Item Characteristics, Guidance and Counseling and its advisory principles, in Higher Education, essential points considered as part of

Public Private Partnership (PPP) in Higher Education in Ethiopia, Einstein's Twin Paradox - which initiates mental gymnastics, and important points on the Development of Communication and Electronics, as well as Pictorial presentations of Quotes with Quotes Masters.

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“Everybody is A GENIUS. But if you judge a fish by its ability to climb a tree, it will live its whole LIFE believing that it is STUPID.”
Albert Einstein

Some Selected Activities at the Testing Center (TC) of St. Mary's University (SMU)

Different activities have been carried out by SMU's experienced professionals at the TC over the last few months of 2022 G.C. Some of these activities include the following:

Improving Outreach Services and Partnership

To select efficient workers for different organizations, employment tests were prepared and administered to 29 job positions such as Secretary, Executive Secretary II, Accountant, Junior Accountant, Senior Accountant, Finance and Grant Officer, and Finance Group Leader, etc.



Some of Zemzem Bank Employment Test Candidates at SMU

To help customers become competent internationally, 95 test sessions of Test of English as a Foreign Language (TOEFL) were conducted. These sessions had a total of 292 registered candidates. Likewise, 9 test sessions of Graduate Record Examination (GRE) for 53 registered candidates and 46 test sessions for 145 registered job positions of Chartered Institute for Securities and Investment (CISI) were conducted.

Improving Quality of Assessment Tools

To assure the completion of graduating students, Comprehensive Degree Exit Exam (CDEE) was prepared and conducted for 2014 E.C prospective graduates of Accounting, Informatics, Management, Marketing and Tourism and Hospitality Departments in the regular program.

TC assisted the preparation of the academic year 2014's third quarter Grade 8 model exams of Kidist Mariam Schools (KMS) and conducted item analysis. The item analysis feedback report was given to concerned bodies aimed at taking the necessary supportive and pedagogical measures.

Training was also given to TC assessors on Editorial Problems observed in the process of assessment tool development at TC. Moreover, in order to improve the quality of assessment tools development preparations, training was given to the newly recruited assessors on blueprint preparation and item development.



Testing Center Staff Participating in Editorial Training

Likewise, availing item analysis of CODL 2013-I was conducted to TC assessors for the purpose of improving their assessment tool preparations based on the sample item analysis feedback reports.

2014-I CODL exams sorting, packing, locking, labeling bags and distributing to the 85 centers was done. All answer sheets from CODL regional centers were collected and arranged by course and delivered to the concerned bodies for marking by Exam Correction and Administration Unit of TC.



Collaborative Activities with CODL Staff

TC academic staff members participated in marking CODL Degree Exams of 2013-III. In relation to this, members of the Testing Center's academic staff were able to get feedback about the questions they had prepared. They also marked 2,037 exams of the four departments: Accounting, Management, Sociology and Basic Courses

Evaluating Test and Test Item Characteristics

Wubishet Shiferaw, Ph.D., SMU, T C

Evaluating test and test item characteristics is an important means to improve instruction and future test development work. The quality of tools of educational assessment should be assessed to determine that the scores they yield have value for the purpose for which they were originally intended.

Tests should be evaluated to insure that they get prepared with information about poorly performing test items and to give possible explanations and clearing up misunderstandings revealed by the test item data. By making use of information from item analysis, teachers/item setters can improve their item-writing skills and revise test items for future use, too. Eventually, a large pool of high-quality test items could be accumulated, and the ability to develop high-quality items will be enhanced in the process.

The Purpose of Item Analysis

The analysis of students' responses to objective test items is a powerful tool for test improvement and for accumulating a bank of high-quality test items. The basic purpose of item analysis is:

- To determine how efficiently the individual test item functions,
- To provide information about the power of each test question for discriminating between good and poor performing examinees,
- To provide information about the level of difficulty of each question item for the group, and

- To provide information about the plausibility (effectiveness) of incorrect alternatives or distracters.

Major Yardsticks for Evaluating the Quality of a Test

It is necessary to consider the following important factors in developing and evaluating tests regardless of the types of score interpretation.

- Relevance and Balance (content appropriateness and representativeness).
- Efficiency and Specificity (adequacy of item for testing and scoring and content specificity to objectives of instruction).
- Difficulty and Discrimination (relatedness of difficulty to the desired score interpretation and discrimination between high- and low-achievers).
- Variability and Reliability (exhibit variability in the distribution of scores and consistency of measurement).

The Process of Item Analysis

There exist many sets of analysis procedures which are in present use. The following procedure gives precise and clear understanding of the process of item analysis.

- Rank the scored answer sheets from the highest to the lowest score.
- Separate two sub-groups of the test paper (higher & lower groups consisting of 27% or more of the total group who took the test).
- Tabulate the number of pupils in the upper and lower groups who selected each alternative of each item.
- Estimate the difficulty level of each item (percentage of pupils who got the item right).
- Estimate the discriminating power of each item (differences between the number of pupils in the upper and lower groups who got the item right).
- Evaluate the effectiveness of distracters in each item (attractiveness of the incorrect alternatives).

Estimating Item Difficulty Level and Discrimination Power

For Estimating Item Difficulty, the formula is



$$\text{Difficulty index} = \frac{R}{T} \times 100.$$

R = the number of pupils who got the item right (total of upper & lower groups).

T = the number of pupils who tried the item

For Estimating Item Discrimination, the formula is

$$\text{Discriminating power} = \frac{RU - RL}{\frac{1}{2} T}$$

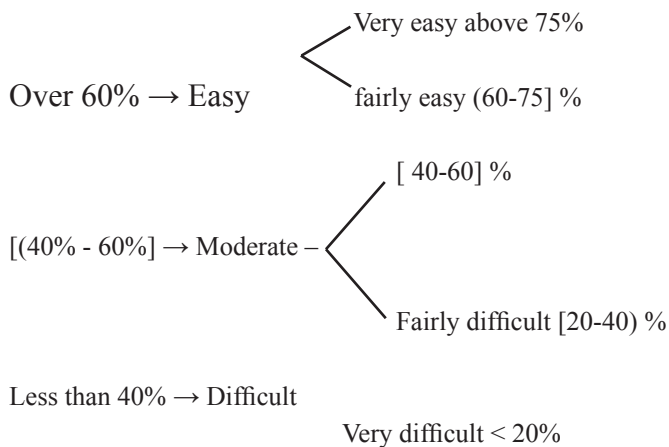
RU = the number of pupils from the upper group who got the item right.

RL = the number of pupils from the lower group who got the item right.

$\frac{1}{2} T$ = half of the total number of pupils included in the item analysis

Evaluation of Item Difficulty & Discrimination Index

Index of Difficulty and Item Evaluation



Index of Discrimination and Item Evaluation

- 0.40 and above ——— Very good item
- [0.30 to 0.39] ——— Reasonably good but possibly subject to improvement
- [0.20 to 0.29] ——— Marginal items, usually subject to improvement
- [0 to 0.19] ——— Poor items. To be rejected or improved by revision
- Below 0 ——— Very poor, negative discrimination power, to be rejected

Example of Item Analysis

To illustrate the method of item analysis, let us suppose that we have just finished scoring 100 test papers and considered all papers for item analysis (100%) and the data is as indicated below.

Alternatives	The correct answers				
	A	B	C	D	omits
Upper 50 pupils	0	50	0	0	0
Lower 50 pupils	8	20	12	10	0

$$\text{Item difficulty level} = \frac{R}{T} \times 100 = \frac{50 + 20}{50 + 50} \times 100$$

$$= \frac{70}{100} \times 100 = 70\%$$

Item discrimination index =

$$\frac{RU - RL}{\frac{1}{2} T} = \frac{50 - 20}{50} = \frac{30}{50} = 0.60$$

Regarding the effectiveness of distracters, the following comments could be given:

- The item has a lower level of difficulty,
- The item discriminates positively distinguishing between high and low achievers, and
- Distracters (alternatives, A, C & D) appear to be operating effectively, and are selected by lower group.

As indicated above, assessing the quality of tools of measurement and analyzing test scores are important means to improve instruction and methods of evaluation. In this regard, St. Mary's University Testing Center is aggressively working on item analysis and is providing the necessary feedback to all concerned bodies of the university.



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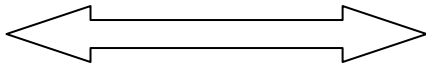
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Guidance and Counseling

Gezahegn Zewdie, SMU, TC

Guidance refers to the process of helping individuals to discover and develop his/her potentials. It helps in the development of educational, vocational, and psychological skills in an individual to achieve an optimal level of happiness and peace in life.

Educational Counseling mainly refers to providing assistance and guidance to students in making the right choices in their studies, be it their educational plans, career aspirations, choice of stream and specialization as well as the selection of college or university as per their interests and preferences.

An Educational Counselor mainly works with school and college students in academic environments. Many schools have their own educational counselors to help students find the right career and make informed choices in their studies.

Educational counselors also assist students in dealing with personal issues impacting their academic journey. To resolve problems related to counseling and guidance Educational Counselors also interact with student's parents or guardian or teachers to help them in figuring out the best solutions for the student's problems.

Some other concerns that Educational Counselors' need to take care of:

- Family Issues
- Puberty related questions
- Advice on educational and career choices
- Providing familial support
- Transportation problems
- Concerns regarding grades
- Bullying or Fighting

Educational Counseling for Working Professionals

- Guidance for higher studies or continuing education
- Leveraging the right skills and education to reach goals.
- Mentor in navigating a career change
- Locating the best possible career opportunities
- Preparation for interviews
- Understanding individuals personality, strengths and weaknesses to find the right career
- Facilitating mid-career change or switching jobs

Some of the Basic Principles of Guidance and Counseling:

Basic principles of guidance and counseling are accepted by most authorities in the field of guidance and counseling are:-

1. Guidance and Counseling is for everyone. The service is not only for special handicaps but it is also meant for all "normal", developing children and adults.
2. The principle of adjustment. While it is true that guidance touches every aspect of an individual's life, it is chiefly concerned with an individual's physical or mental health, with his adjustment at home, school, society and vocation.
3. Guidance and counseling activities should therefore be based on the need and total development of every person. It is the duty of all personnel in a setting to identify the needs



of individuals so that program activities can be designed to meet such needs.

4. Guidance and Counseling must be provided in a way that ensures human dignity and worth. The full and adequate development of the individual must be given preference. It should be seen as encouraging individuals to attain maximum satisfaction, to realize their potentials and to be aware to self. No one who has gone through counseling should feel inadequate.
5. Guidance and Counseling is a sequential, continuous and developmental process that starts at birth and continues to death. This means that guidance and counseling runs from the nursery school through primary, secondary to the tertiary institutions. It is not a once-and-for-all event but a process which is an integral part of the total educational programs throughout the school life of an individual;
6. There is close relationship between counseling activities and the instructional process, each contributing to the other. Counseling can help make the instructional activities to be more relevant and meaningful to the needs of students. The instructional activities can give necessary information and directives to a student in planning his/her life goals.
7. The principle of human uniqueness. No two individuals are alike. Individuals differ in their physical, mental, social and emotional development. Guidance service must recognize these differences and guide each individual according to their specific need. Through the use of well-planned instructional strategies and appraisal techniques, individuals can become more knowledgeable about themselves and about the world around them.
8. The principle of expert opinion. Specific and serious guidance problems should be referred to persons who are trained to deal with particular area of adjustment for their expert opinion.
9. The principle of evaluation. The guidance program should be evaluated in terms of its effectiveness and improvement. Evaluation is essential for the formulation of new goals or re-drafting the existing goals.

Source: <https://cbsearch.site/search>

Public Private Partnerships (PPP) in Higher Education in Ethiopia

Asres Mekuriaw, SMU, TC

The principal purpose of PPP is to bring forces together to address problems that are too big and complicated for one sector to solve alone. Meanwhile, it can also be noted that PPP brings benefits to both public and private sector actors and the general public at large, as it also distributes risks involved between the partners. Even more, PPP helps cut large overhead costs and delays of going through bureaucratic procedures.

The four common models of PPP are often applied in other sectors like construction, and infrastructure development can be extrapolated to the higher education sector. These are:

- **Basic infrastructure model:** The private sector invests in infrastructure and the government runs the operations and management of the institutions in turn, making annualized payments to the private investor.
- **Outsourcing model:** Private sector invests in infrastructure and runs operations, and the management and the responsibility of the government is to pay the private investor for the specified services.
- **Equity/Hybrid model:** Investment in infrastructure is shared between government and private sectors while operation and management is vested with the private sector.
- **Reverse outsourcing model:** Government invests in infrastructure and the private sectors take the responsibility of operation and management.

Rationale for Public Private Partnerships (PPP) in Higher Education

Different kinds of benefits accrue to different stakeholders from the effective use of PPPs.



Crucial benefits are realized by government, and the public at large, from engagement in PPPs.

Summarizing such benefits as : improving service delivery, improving cost-effectiveness, increasing investment in public infrastructure, reducing public sector risk, delivering capital projects faster, having clear customer focus, improving budget certainty, recovery of user charges, better use of assets, and higher productivity by linking payments to performance.

Why Public Private Partnerships (PPP) in Ethiopian Higher Education?

- **Resource Sharing:** Resource limitation is among the major operational challenges of higher education institutions both private and public. By sharing resources, institutions can strengthen their capacities and maximize cost efficiency by reducing redundancy of resources and facilities. Laboratory facilities and equipment are among the common examples identified by respondents where such resource sharing partnerships could be very effective.

One respondent said —there are expensive laboratory equipment that might be used once or twice in a semester; institutions can reduce avoidable expenses by sharing such resources.

- **Opening joint programs:** By opening joint programs, institutions share not only the expertise of one another but also the possible impact of prestige. Exchange of students and teachers within particular programs enhances the quality of programs. Sometimes, enough expertise and /or a critical mass of students might not be available in one institution. Such a scenario calls for partnership between institutions to join forces and pursue the provision of programs.
- **Sharing of expertise and experience:** Public and private institutions may have different combination of expertise. Sharing these, expertise creates opportunities for strengthened capacity to address their common challenges and pursue common goals. Sharing of available experts, such as in having arrangements for their staff to engage in more than one institution

at different capacity has been mentioned repeatedly as a potentially beneficial partnership arrangement. On the other hand institutions may also have different experience in program management, research, student's service, projects management, etc. One respondent pointed out —because private institutions are profit oriented they are more likely to have accumulated experience of establishing efficient systems. It is no secret that our public institutions have serious challenges in proper resources utilization and cost minimization.

- **Joint research:** As in the case of other areas, there is a considerable limitation of research capacity among both private and public institutions. Therefore, bringing efforts into a united front would benefit all partners, as well as funding agencies and government, in maximizing research output. This includes but not limited to combining resources and researchers in the efforts of one another. Rather partner institutions can design, apply for funding and undertake joint research projects. This will help them to create synergy in terms of their contribution to the overall research demand of the country.
- **Joint community service efforts:** With effective partnership, institutions will have the chance to avoid redundancy of efforts and instead coordinate their activities in community services.

Complex and multifaceted challenges naturally require coordinated efforts. It is common to see that higher education institutions are engaged in community services but in very fragmented manner.

One respondent noted:--community service efforts are not well coordinated even at institutional level. As a result, different schools and departments waste resources and fail to effectively address the big challenges they are trying to tackle. The same is the case across institutions. In some cases you perceive different institutions working on the same thing while some important issues are not focused at all. This can be reduced if coordinated efforts are put to effect by the institutions.

- **Sharing Burden:** It is traditionally the responsibility of the government to provide



services like education. PPP distributes the burden to the public and the private actors.

Through the involvement of the private institutions, the resource and coordination burden on the government and its respective agencies will be reduced. Through PPP, institutions can establish a system of keeping each other to the use of resources, to maintain quality education, etc. – this is less work for the government. Partnership also provides opportunities for public institutions to be more effective in income generation. Therefore, the resource burden on the government is reduced by the same rate.

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Einstein's Twin Paradox

Degefa Burayou, SMU, TC

Modern relativity theory is divided into two parts: special relativity and general relativity. Special relativity deals with observers who are moving at constant velocity; while, general relativity deals with observers who are undergoing acceleration. In his endeavor, Einstein is famous because his theory of relativity made revolutionary predictions. The prime example is that of the two hypothetical- twins. One of them stays at home; on earth. The other tours in to space in an ultra-fast rocket.

In Einstein special theory of relativity, there is no such thing as 'time' in the singular. Time passes differently for different observers, depending on the observer's motion. The prime example is that of the hot hypothetical twins: one of them stays at home on earth. The other journeys into space in an ultra-fast rocket, nearly as fast as the speed of light, before returning home.

Afterwards, when the twins are returned on earth, the travelling twin is markedly younger, compared to her stay-at-home sibling. The exact age difference depends on the details of the journey. For example,

it could be that, aboard the spaceship, two years of light-time have passed on board clocks and calendars show that two years- have elapsed, and both spaceship and travelling twin have aged by exactly that amount of time. On earth, however, a whopping 30 years have passed between the spaceship's departure and its return. Just like all other humans on the planet, the twin on earth has aged by 30 years during that time. Seeing the two twins side by side, the difference is striking so far, so strange, but undoubtedly real. Space travel with speeds close to that of light may be unfathomably far beyond the reach of current technology.

But, sending elementary particles on round trips in a particle acceleration at, 99.99999 percent of light, speed is routine. The result is in precise agreement with the predictions special relativity -

The "inner clock" of such travelling particular runs much slower than that of a particle of the same species that remains at rest (of the page "The relativity of Space and Time in the sections Special Relativity of Elementary Einstein").

The case of the travelling twins is also known as the "twin problem" or the "twin paradox". It forms the point of view of the twin on earth; one can explain the age difference by appealing to time dilation, a basic concept of special relativity. It involves an observer (more precisely, an inertial observer), for instance, an observer that lives on space station floating through empty space. For such an observer, special relativity predicts the following:

For any moving clock, that observer will come to the conclusion that it is running slower than his own. Whether it is a clock on another space station floating past or a clock on an engine-driven rocket, in the time it takes for a second to elapse on the observer's own clocks, less than a second will have elapsed on the moving clock. This slowdown is true not only for clocks, but for everything that happens on the moving space station or in the flying rocket

All processes taking place on these moving objects will appear slowed down for our observer. Characteristically, there are situations where time dilation is mutual. For instance, of these are two observers drifting through space, each on his, or her own space station, and if those two space stations are



in relative motion, then for each observes, the time in the other space station appears to run slower than for himself (If that already sounds like a paradox to you, you might want to read the spot-light topic, The dialectic of relativity)

With the help of time dilation often abbreviated to “moving clocks go slower”- one can try to explain what happens to the twins. No wonder the travelling twin ages less. After all, the twin on earth can evoke time dilation: moving clocks go slower, and so do the clocks of the moving twin. On these slower moving clocks-and by extension, in the whole spaceship-less time passes than on earth, in other words: when the travelling twin returns, he is younger.

No paradox so far. But why can't the following twin turn the tables on her sibling? After all, motion is relative. Why can't the twin in the spaceship define herself as being at rest? From that point of view, it would be Earth that moves away before returning to the spaceship. And if that is so, couldn't the travelling twin apply time dilation? (“moving clocks are slower”) to everyone who remained on Earth? By that argument, shouldn't it be the humans on earth that are younger than expected once the twins are united? If both twins are on an equal footing, then, each one should be allowed to consider her at rest and evoke time dilation. But in the end, when the twins meet again, only one of them can be right-then, there cannot be ambiguity, either the one twin is younger, or the other (or, of course, both twins' arguments are wrong and they have aged exactly the same.) A contradiction- a twin paradox?.

In physics, relativity improved the science of elementary particles and their fundamental interactions, along with marking the nuclear age. With relativity, cosmology and astrophysics predicted extraordinary astronomical phenomena such as neutron stars, black holes, and gravitational waves. Generally speaking, Einstein's work transformed our way of living on earth. When Einstein put forward his general theory of relativity, that gravity itself is the bending of space and time by mass and energy, it a seedling moment in the history science. Today, the importance of his work is even better organized than a century ago. Regarding the theory of relativity, even in schools, teachers employ this theory to activate teaching learning process; and

thinking ability of their students in particular, by providing problems regarding the “Twin Paradox.” Even though they simplify the question that the students are to prove how the one twin who has travelled to a planet seems to be different in age. In light of the explanation, everything remains relative in any circumstance irrespective of religious matters. For example, truth is relative in that what is true for one is not true for the other. In this case, it is relative. Source:“The case of the travelling twins” in: Einstein Online Band 04 (2010) ,01-1007

André-Marie Ampère and His Contributions (1775-1836)

Wondwosen Shimelis, SMU, TC

Although not familiar with the man himself, most people have heard of the unit of electric current commonly called the “amp” a basis for past and continued development of communications and electronics. It was named after Andre Marie Ampere, the French chemist, physicist and mathematician, who published the relation between electricity and magnetism and developed the science of electrodynamics.

He is also the inventor of numerous applications, such as the solenoid (a term coined by him) and the electrical telegraph. As an autodidact, Ampère was a member of the French Academy of Sciences and professor at the École Poly Technique and the College de France.

The SI unit of measurement of electric current, the ampere, is named after him. His name is also one of the 72 names inscribed on the Eiffel Tower.

Early life: André- Marie Ampere was born on 20th January 1775 to Jean- Jacques Ampere at Lyon, Kingdom of France. Ampère was a prosperous business man. He spent his childhood and adolescence at the family property at Poleymieux- au- Mont - d'Or near Lyon. Jean- Jacques Ampère, a successful merchant, was an admirer of the philosophy of Jean- Jacques Rousseau, whose theories of education (as outlined in his treatise *Émile*) were the basis of Ampère's education. Rousseau believed that young



boys should avoid formal schooling and pursue instead an “education direct from nature.” Ampère’s father actualized this ideal by allowing his son to educate himself within the walls of his well- stocked library. French Enlightenment master pieces such as Georges- Louis Leclerc (begun in 1749) and Denis Diderot and Jean le Rond d’Alembert’s Encyclopedic (volumes added between 1751 and 1772) thus became Ampère’s school masters. The young Ampère, however, soon resumed his Latin lessons, which enabled him to master the works of Leonhard Euler and Daniel Bernoulli.

Time of French Revolution:- In addition, Ampere used his access to the latest books to begin teaching him-self advanced mathematics at age 12. In later life, Ampère claimed that he knew as much about mathematics and science when he was eighteen as ever he knew, but as a polymath, his reading embraced history, travels, poetry, philosophy, and the natural sciences. His mother was a devout Catholic, so Ampère was also initiated into the Catholic faith along with Enlightenment science. The French Revolution (1789–99) that began during his youth was also influential: Ampère’s father was called into public service by the new revolutionary government, becoming a justice of the peace in a small town near Lyon. When the Jacobin faction seized control of the Revolutionary government in 1792, his father Jean- Jacques Ampère resisted the new political tides, and he was guillotined on 24 November 1793, as part of the Jacobin purges of the period.

In 1796, Ampère, met Julie Carron, and in 1799 they were married. Ampère took his first regular job in 1799 as a mathematics teacher, which gave him the financial security to marry Carron and father his first child, Jean- Jacques (named after his father), the next year. (Jean- Jacques Ampère eventually achieved his own fame as a scholar of languages.) Ampère’s maturation corresponded with the transition to the Napoleonic regime in France, and the young father and teacher found new opportunities for success with in the technocratic structures favored by the new French First Consul. In 1802, Ampère was appointed a professor of physics and chemistry at the École Centrale in Bourgen- Bresse, leaving his

ailing wife and infant son Jean- Jacques Antoine Ampère in Lyon. He used his time in Bourg to research mathematics, producing *Considerations sur la theories mathématique de jeu* (1802; “Considerations on the Mathematical Theory of Games”), a treatise on mathematical Probability that he sent to the Paris Academy of Sciences in 1803. After the death of his wife in July 1803, Ampère moved to Paris, where he began a tutoring post at the new École Polytechnique in 1804. Despite his lack of formal qualifications, Ampère was appointed a professor of mathematics at the school in 1809. As well as holding positions at this school until 1828, in 1819 and 1820, Ampère offered courses in philosophy and astronomy, respectively, at the University of Paris, and in 1824, he was elected to the prestigious chair in experimental physics at the College de France. In 1814, Ampère was invited to join the class of mathematicians in the new Institute Imperial, the umbrella under which the reformed state Academy of Sciences would sit.

Ampère engaged in a diverse designing of scientific inquiries during the years leading up to his election to the academy—writing papers and engaging in topics from mathematics and philosophy to chemistry and astronomy, which was customary among the leading scientific intellectuals of the day. Ampère claimed that “at eighteen years he found three culminating points in his life, his First Communion, the reading of Antoine Leonard Thomas’s “Eulogy of Descartes”, and the Taking of the Bastille. On the day of his wife’s death he wrote two verses from the Psalms, and the prayer, ‘O Lord, God of Mercy, unite me in Heaven with those whom you have permitted me to love on earth.’ In times of duress he would take refuge in the reading of the Bible and the Fathers of the Church.”

For a time he took into his family the young student Frédéric Ozanam (1813–1853), one of the founders of the Conference of Charity, later known as the Society of Saint Vincent de Paul. Through Ampère, Ozanam had contact with leaders of the neo-Catholic movement, such as François- René Chat eaubriand, Jean- Baptiste Henri Lacordaire, and Charles Forbes René de Mont alembert . Ozanam was beatified by Pope John Paul II in 1998.



Work in Electro-Magnetism: When in September 1820, Hans Christian Oersted reported to the French academy the effect of an electric current upon a compass needle and the nature of the magnetic field consequently set up ampere was in the audience.

While most of the academy member took their time digesting this report, ampere as hard at work to discover the theories behind the reported action, working day and night, he was able to give a complete demonstration of the law of interaction between such electric currents just one week later.

The discourse was so clearly and logically formulated, despite the fact that it was prepared is only one work, that is had stood from that day to this without any re- statement or alteration a classic analysis in electrical literature.

During the next five years, he investigated the series of experiments in which he investigated the laws governing the force acting between two wires carrying currents the force which he himself had discovered. Ampère began developing a mathematical and physical theory to understand the relationship between electricity and magnetism. Furthering Oersted's experimental work, Ampère showed that two parallel wires carrying electric currents attract or repel each other, depending on whether the currents flow in the same or opposite directions, respectively - this laid the foundation of electrodynamics. He also applied mathematics in generalizing physical laws from these experimental results. The most important of these was the principle that came to be called Ampère's law, which states that the mutual action of two lengths of current - carrying wire is proportional to their lengths and to the intensities of their currents. Ampère also applied this same principle to magnetism, showing the harmony between his law and French physicist Charles Augustin de Coulomb's law of electric action. Ampère's devotion to, and skill with, experimental techniques anchored his science within the emerging fields of experimental physics.

Ampère also provided a physical understanding

of the electromagnetic relationship, theorizing the existence of an "electrodynamics molecule" (the forerunner of the idea of the electron) that served as the component element of both electricity and magnetism. Using this physical explanation of electromagnetic motion, Ampère developed a physical account of electromagnetic phenomena that was both empirically demonstrable and mathematically predictive. In 1827, Ampère published his experience (Memoir on the Mathematical Theory of Electrodynamic Phenomena, Uniquely Deduced from Experience), the work that coined the name of his new science, electrodynamics, and became known ever after as its founding treatise.

In 1827, Ampère was elected a Foreign Member of the Royal Society and in 1828, a foreign member of the Royal Swedish Academy of Science. Probably the highest recognition came from James Clerk Maxwell, who in his "Treatise on Electricity and Magnetism", named Ampère "the Newton of electricity". Though past and present history always gives Ampere credit for the theory of electromagnetism, however, Ampere himself never failed to credit oersted with the actual discovery. With communications poor and the public generally disinterested, it would have been very easy for Ampere to have more or less ignored or gradually eliminated oersted. In all of his published statement, however, he was generous. André-Marie Ampère was died 10 June 1836 in the age of 61 at Marseille, kingdom of France.

Legacy: In recognition of his contribution to the creation of modern electrical science, an international convention, signed at the 1881 International Exposition of Electricity, established the ampere as a standard unit of electrical measurement, along with the coulomb, volt, ohm, watt and farad, which are named, respectively, after Ampère's contemporaries Charles-Augustin de Coulomb of France, Alessandro Volta of Italy, Georg Ohm of Germany, James Watt of Scotland and Michael Faraday of England. Ampère's name is one of the 72 names inscribed on the Eiffel Tower.

Several items are named after Ampère; many streets and squares, schools, a Lyon metro station, a graphics processing unit microarchitecture, a mountain on the

moon and an electric ferry in Norway.

Sources

- https://en.m.wikipedia.org/wiki/Andr%C3%A9-Marie_Amp%C3%A8re#
- Telecommunication pioneer 1903

The Meaning of Organization and Organizational Behavior

Tekalign Tanga, SMU, TC

What is an organization?

- An organization is defined as a collection of people who work together to achieve a wide variety of goals.
- It is a field of study that investigates the impact that individuals, groups, and structure have on behavior within organizations, for the purpose of applying such knowledge toward improving an organization's effectiveness.

Organizational behavior is defined as the actions and attitudes of people in organizations.

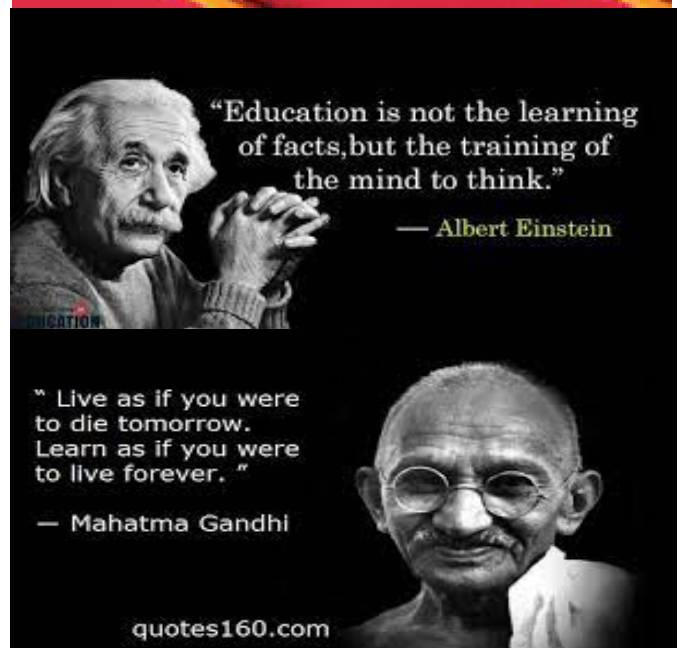
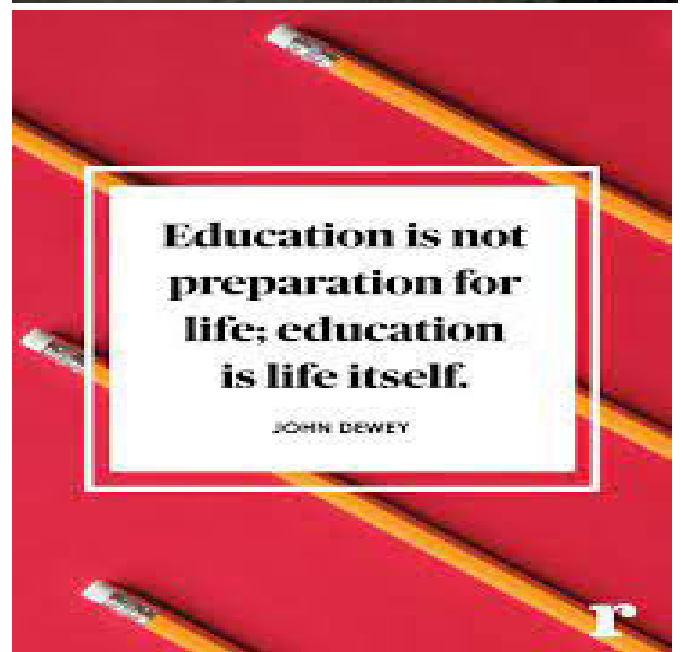
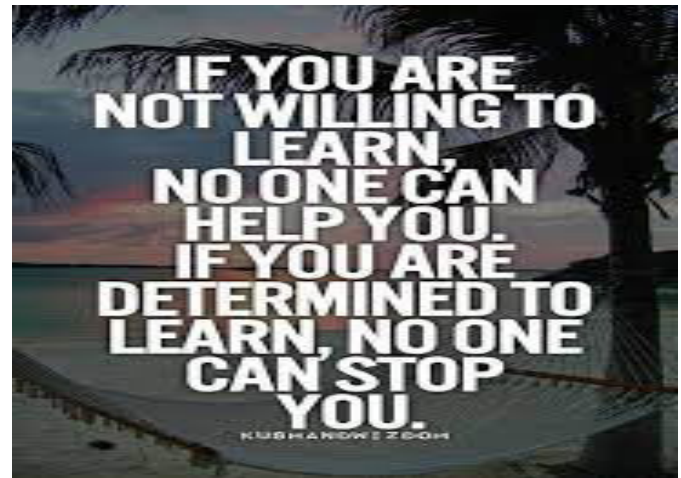
- It can help managers understand:
- the complexity within organizations,
- identify problems;
- determine the best ways to correct them;
- and establish whether the changes would make a significant difference.
- Organizational behavior (OB) is the study of:
- human behavior in organizational settings,
- how human behavior interacts with the organization;
- and the organization itself.

Educational Quotes

Aristotle once said, " Educating the mind without educating the heart is no education at all."

"The most valuable resource that all teachers have is each other. Without collaboration, our growth is limited to our own perspectives."

Robert John Meehan

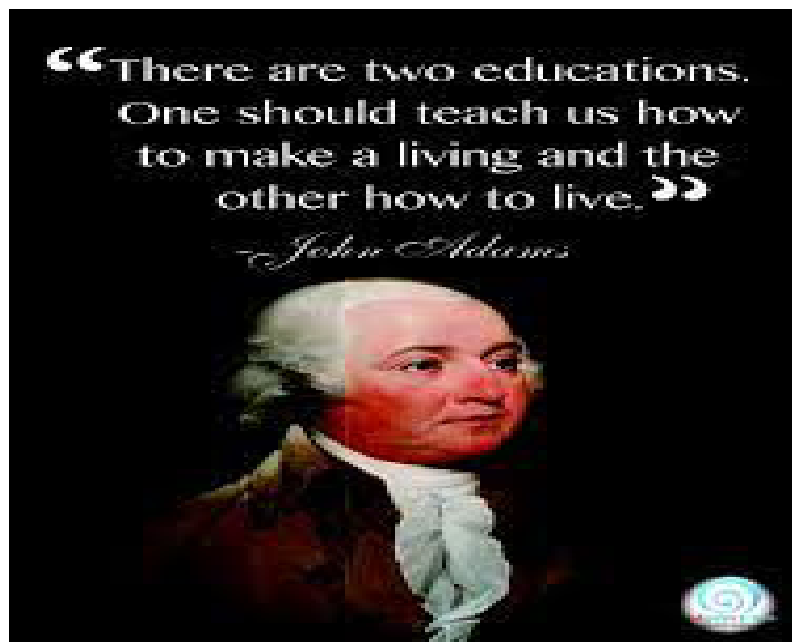
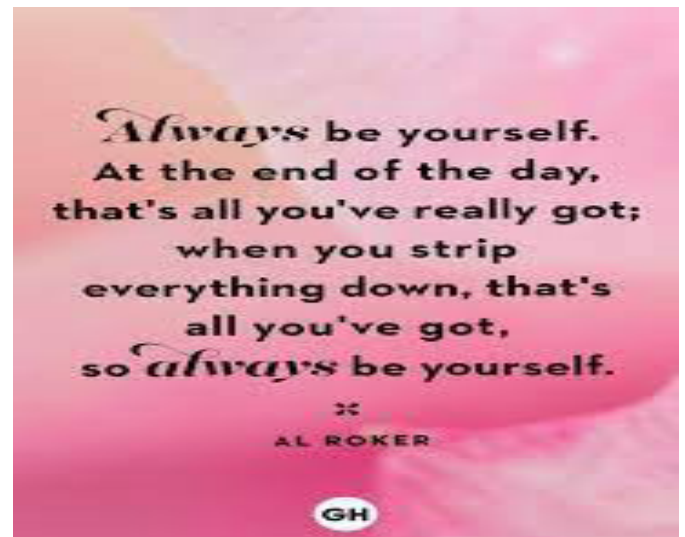
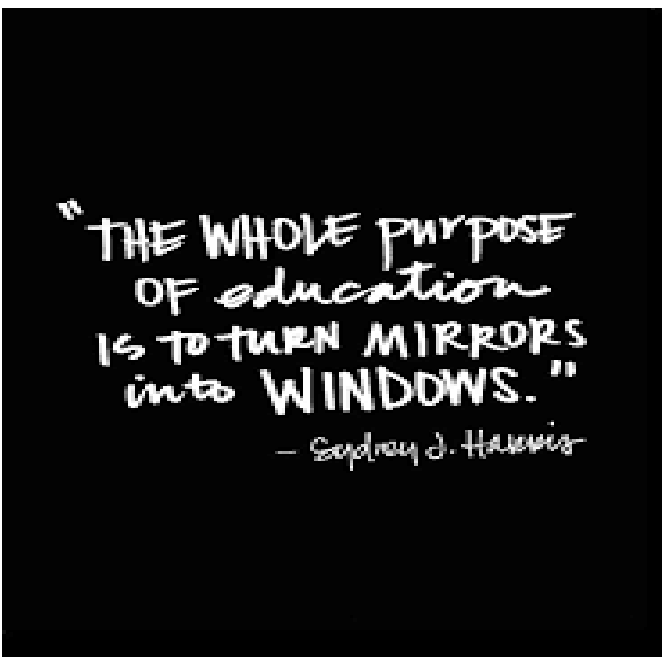




"In learning, you will teach; and in teaching, you will learn."

"The more you read, the more things you will know. The more that you learn the more places you will go."

Dr. Seuss



“Tell me and I forget, teach me and I may remember, involve me and I learn.”

I am still learning.
Michelangelo at age 87

“

The older you get, the more fragile you understand life to be. I think that's good motivation for getting out of bed joyfully each day.”

JULIA ROBERTS

If you feel like there's something out there that you're supposed to be doing, if you have a passion for it, then stop wishing and just *do it.*

✳
WANDA SYKES

GH

“Learning starts with failure; the first failure is the beginning of education.”-

<http://www.allisonacademy.com>

“The great aim of education is not knowledge but action.”-

<http://www.allisonacademy.com>

“Change is the end result of true learning.”-

<http://www.allisonacademy.com>>

A true education is defined as” enough knowledge given to a student to be successful in life after completing school.”

<https://www.bartleby.> essay>



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- ◆ Marketing Management
- ◆ Tourism & Hospitality Management
- ◆ Computing Science

Undergraduate Degree Programs (College of Open and Distance Learning)

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- ◆ Management
- ◆ Marketing Management
- ◆ Financial Economics
- ◆ Rural Development
- ◆ Agricultural Extension
- ◆ Agri-Business Management
- ◆ Cooperative (Accounting & Auditing)
- ◆ Cooperative (Business Management)
- ◆ Educational Planning & Management
- ◆ Economics
- ◆ Sociology
- ◆ Public Administration and Development Management
- ◆ Agricultural Economics
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- ◆ Logistics and Supply Chain Management

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- ◆ Master of Project Management
- ◆ Master of Arts in International Cooperation & Development
- ◆ Master of Science in Economics
- ◆ Master of Human Resource Management

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- ◆ MA in Social Work
- ◆ MA in Development Management
- ◆ Master of Business Administration (MBA)
- ◆ MBA with HRM Concentration
- ◆ MSc. in Agricultural Economics
- ◆ MA in Project Management
- ◆ MBA in Accounting and Finance
- ◆ MA in Marketing Management
- ◆ MA in Development Economics
- ◆ MSc. in Computer Science
- ◆ MA in Higher Education
- ◆ MA in Sociology

Graduate Programs Offered in Partnership with Università Cattolica del Sacro Cuore, Italy

- ◆ MBA in Impact Entrepreneurship

Graduate Programs Offered in Partnership with IGNOU (Distance)

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- ◆ MSW (Master of Arts in Social Work)
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- ◆ MARD (Master of Arts in Rural Development)
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- ◆ Praxis Exam
- ◆ CISI Exams
- ◆ Recruitment tests

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| 2. Auditing | 10. Human Resource Management | 16. Archives Management |
| 3. Cashier | 11. Business Administration | 17. Customer Service |
| 4. Finance Management | 12. Project Management | 18. Database Management |
| 5. Finance Officer | 13. Risk Management | 19. Computer Programming |
| 6. Marketing Management | 14. Procurement and Supplies Mgt. | 20. Software Engineering |
| 7. Salesperson | | 21. Computer Networking |
| 8. Accounting Clerk | | |

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- Placement
- Etc.

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See the sketch map for details.

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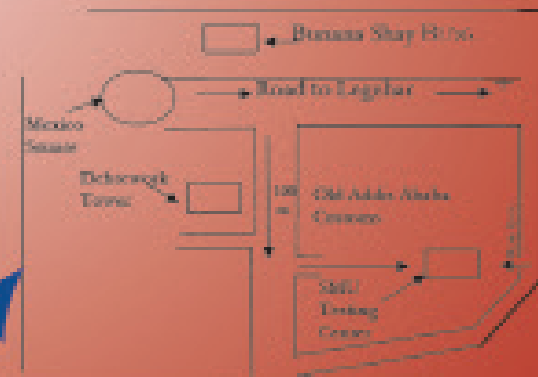
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